

TITLE	SHEET 2 OF 5	SIZE CODE	NUMBER	REV
16 LINE MUX DIST PANEL & 115V PS PROG LINE SPEEDS	5	B DD	DH11-0	N

CUSTOMER PRINT SET				ELECTRICAL						CUSTOMER PRINT SET				ELECTRICAL									
A	B			MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE	A	B			MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE		
X	X				1	D-UA-DH11-0-0	E	14	UNIT ASSY (DH11)								3	D-IA-7009182-0-0		1	BACK PLANE ASSY		
	X					D-BD-DH11-0-16	*	2	MODEM CONTROL BLOCK DIAGRAM														
X	X					D-MU-DH11-0-3	D	1	MODULE UTILAZATION														
X	X					A-PL-DH11-0-3	D	1	MODULE UTILIZATION (PL)														
X						D-BD-DH11-0-4	*	1	DM11-BB BLOCK DIAGRAM														
X	X					A-SP-DH11-0-5	B	25	ENGINEERING SPEC		X	X				4	D-CS-5410333-0-1	#	1	CIRCUIT SCHEMATIC (BACK PNL)			
X	X					A-AL-DH11-0-6	D	1	ACCESSORY LIST								K-CO-5410333-0-4		1	X-Y COORDINATE HOLE LOCATION			
X	X					A-SL-DH11-0-7	A	2	SOFTWARE LIST								D-AH-5410333-0-5		1	ASSY DRILLING HOLE LOCATION			
X	X					D-BS-DH11-0-8	A	5	MULTIPLE UART CARD LINE 0-7								B-MH-5410333-0-6		1	MODULE ECO HISTORY			
X	X					D-BS-DH11-0-9	A	5	MULTIPLE UART CARD LINE 8-15														
X						D-MU-DM11-A-3	#	1	MODULE UTILIZATION (DIST PNL)														
X						C-IC-DM11-A-4	#	1	INTERCONNECTION (DM11)														
C						K-WL-DM11-A-5	#	1	WIRE LIST (DIST PNL)														
X						D-BS-DM11-A-6	#	2	DM11-DB TRANSMIT & RECEIVE														
X						D-IC DM11-A-9	#	2	DM11-DA CONNECTOR CARDS		X	X				6	D-CS-M7277-0-1	#	6	CIRCUIT SCHEMATIC (CURRENT ADDRS)			
X	X					C-IA-BC08S-0-0	#	1	I/O CABLE ASSY								K-CO-M7277-0-4		1	X-Y COORDINATE HOLE LOCATION			
X						D-IA-7008493-0-0	#	1	POWER HARNESS								D-AH-M7277-0-5		1	ASSY DRILLING HOLE LOCATION			
	X					C-IA-BC08R-0-0	#	1	MODEM I/O CABLE ASSY.								B-MH-M7277-0-6		1	MODULE ECO HISTORY			
X	X					B-CS-M401-0-1	#	1	VARIABLE CLOCK (M401)														
X						C-CS-W404-0-1	#	1	DTR JUMPER														
X	X					B-CS-M405-0-1	#	1	CRYSTAL CLOCK (M405)														
X						C-CS-M594-0-1	#	1	EIA LEVEL CONVERTER														
X						D-CS-M596-0-1	#	2	TTY 20 MA CONVERTER		X	X				7	D-CS-M7278-0-1	#	8	CIRCUIT SCHEMATIC (REG&BYTE CNT)			
X	X					D-CS-M7821-0-1	#	1	INTERRUPT CONTROL								K-CO-M7278-0-4		1	X-Y COORDINATE HOLE LOCATION			
X	X					D-CS-M796-0-1	#	1	UNIVUS MASTER CONTROL (M796)								D-AH-M7278-0-5		1	ASSY DRILLING HOLE LOCATION			
X	X					C-CS-M920-0-1	#	1	INTERNAL BUS CONN (M920)								B-MH-M7278-0-6		1	MODULE ECO HISTORY			
X						D-CS-M971-0-1	#	1	CABLE INTERFACE														
X						C-CS-M973-0-1	#	1	TTY CABLE CONNECTOR														
X						B-CS-M974-0-1	#	1	DM11 MAINTENANCE JUMPER														
	X					D-CS-H861-0-1	#	1	H861 TEST CONNECTOR														
		X				A-SP-DH11-0-10	B	40	DH11 TEST PROCEDURE														
X	X					A-ST-DH11-0-11	A	28	DH11 MODULE TEST PROCEDURE		X	X				8	D-CS-M7279-0-1	#	3	CIRCUIT SCHEMATIC (FIFO BUFFER)			
X	X					D-BD-DH11-0-12	C	3	DH11 UNIBUS INTERFACE								K-CO-M7279-0-4		1	X-Y COORDINATE HOLE LOCATION			
X	X					C-IC-DH11-0-13	B	2	INTERCONNECTION DH11								D-AH-M7279-0-5		1	ASSY DRILLING HOLE LOCATION			
X						D-UA-EC01R-0-0	#	1	CABLE CARD ASSY								B-MH-M7279-0-6		1	MODULE ECO HISTORY			
X	X					D-CS-G727-0-1	#	1	GRANT CONTINUITY CARD														
		X				A-AP-DH11-0-14	B	7	ACCEPTANCE PROCEDURE														
X	X					D-BS-DH11-0-15	*	2	FIFO BUFFER (M7279)														
X	X					D-IA-7009561-0-0	#	1	DH11 PWR HARNESS														
	X					D-CS-H315-0-1	#	1	H315 MODEM TEST CONNECTOR														
	X					C-AU-H8611	#	1	M5906 TEST CONNECTOR														
X	X				2	D-IA-7009180-0-0	#	1	WIRED ASSY (DH11)														
C	C					K-WL-DH11-0-2	C	1	WIRE LIST														
						A-WT-7009180-0	#	1	AWT REVISION STATUS														
CUSTOMER PRINT SET CODES				X = PRINT OF DOCUMENT INCLUDED IN PRINT SET C = INCLUDES ALL PRINTS INDICATED ON DOCUMENT S = CONFIDENTIAL AUTHORIZED SIGNATURE REQUIRED						TITLE				16 LINE MUX DIST PANEL & 115V PS PROG LINE SPEEDS				SHEET 3 OF 5		SIZE	CODE	NUMBER	REV
																				B	DD	DH11-0	N

PAGE REVISION CONTROL SHEET

SH NO.	PAGE REVISIONS																		
1	A	B	C	D	E	F	G	H	I	J	K	L	M						
2	A	B	C	D	E	F	G	H	I	J	K	L	M						
3	A	B	C	D	E	F	G	H	I	J	K	L	M						
4	A	B	C	D	E	F	G	H	I	J	K	L	M						
5	A	B	C	D	E	F	G	H	I	J	K	L	M						
6	A	B	C	D	E	F	G	H	I	J	K	L	M						

REMARKS

REVISE ALL
SHEETS ON EACH
ECO

DATE	ENG.	ETCH REV.	ECO NO.
—		A	—
4/26/73	<i>JD</i>	A	00001
8/13/73	<i>JD</i>	B	00002
2/5/74	<i>JD</i>	B	00003
3-20-74	<i>JD</i>	C	00004
6-22-75	<i>JD</i>	C	00005
8-18-75	<i>JD</i>	C	00006
1-28-76	<i>JD</i>	D	00007
9-17-76	<i>JD</i>	D	00008
12-21-76	<i>JD</i>	E	00009
8-77	<i>JD</i>	E	00010

FIRST USED ON OPTION/MODEL

PDP 11

DNR	DATE
CHKD	DATE
ENG	DATE
PROJ. ENG.	DATE
PROD.	DATE

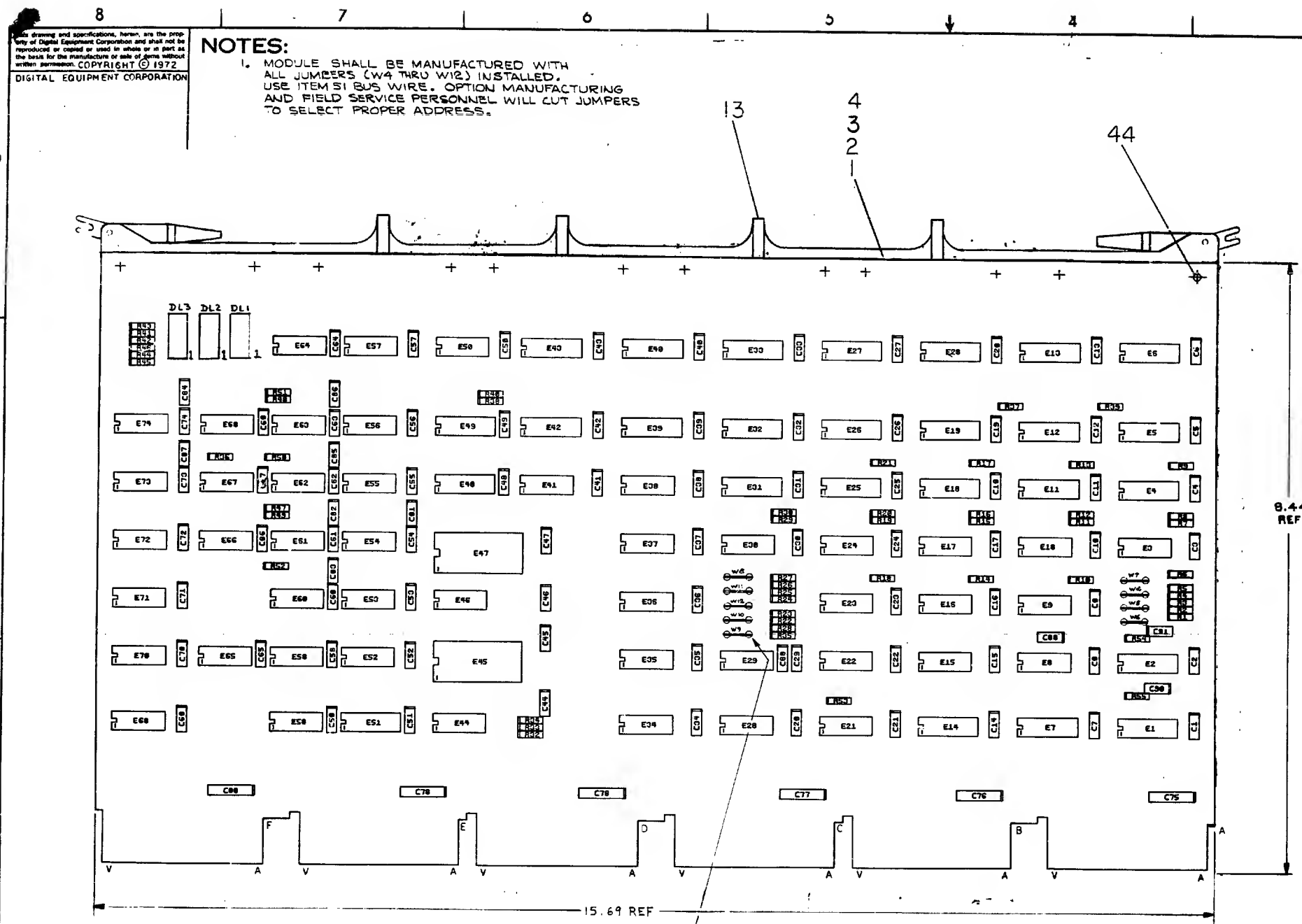
<div style="border: 1px solid black; padding: 5px; display: inline-block;">d</div> <div style="border: 1px solid black; padding: 5px; display: inline-block;">i</div> <div style="border: 1px solid black; padding: 5px; display: inline-block;">g</div> <div style="border: 1px solid black; padding: 5px; display: inline-block;">i</div> <div style="border: 1px solid black; padding: 5px; display: inline-block;">t</div> <div style="border: 1px solid black; padding: 5px; display: inline-block;">a</div> <div style="border: 1px solid black; padding: 5px; display: inline-block;">l</div>	EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
TITLE	
CURRENT ADDR &	
ADDRS SELECT	

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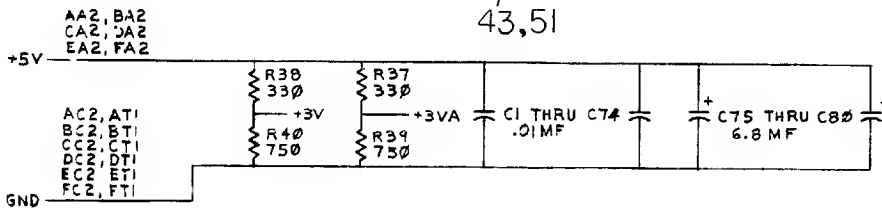
NEXT HIGHER ASSY.
 B-DD-DH11-Ø
 SCALE 1"=1'-0"
 SHEET 1 OF 6

SIZE	CODE	NUMBER	REV.
B	CS	M7277- ϕ -1	M



NOTES:
1. MODULE SHALL BE MANUFACTURED WITH ALL JUMPERS (W4 THRU W12) INSTALLED. USE ITEM 51 BUS WIRE. OPTION MANUFACTURING AND FIELD SERVICE PERSONNEL WILL CUT JUMPERS TO SELECT PROPER ADDRESS.

DEC 74157	8	16
DEC 7409	8	16
DEC 74150	12	24
DEC 7442	8	16
DEC 74193	8	16
DEC 74154	12	24
DEC 8640	1	8
IC TYPE	GND	+5V
GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY. EXCEPTIONS ARE STATED ABOVE.		
IC PIN LOCATIONS		

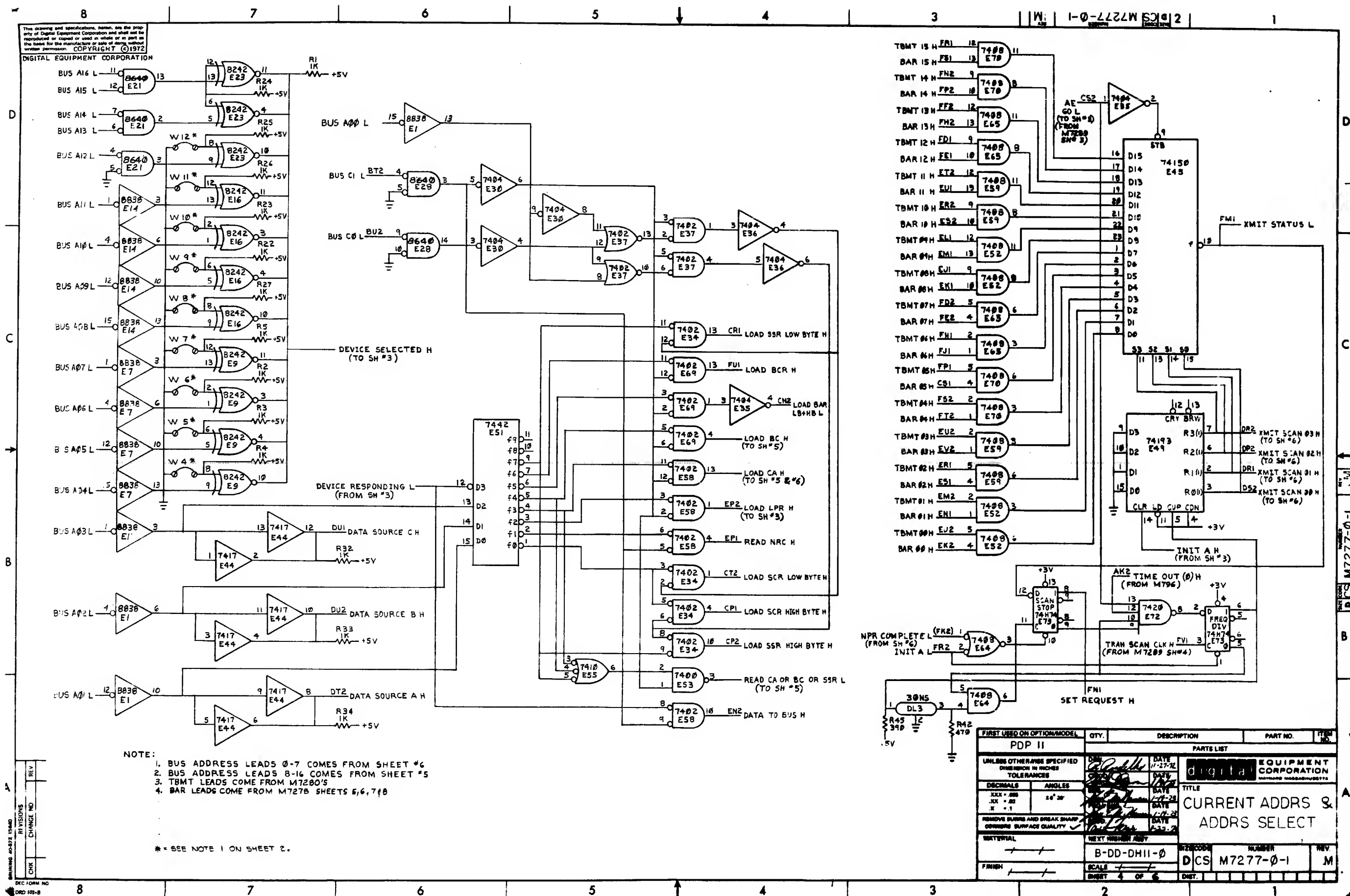


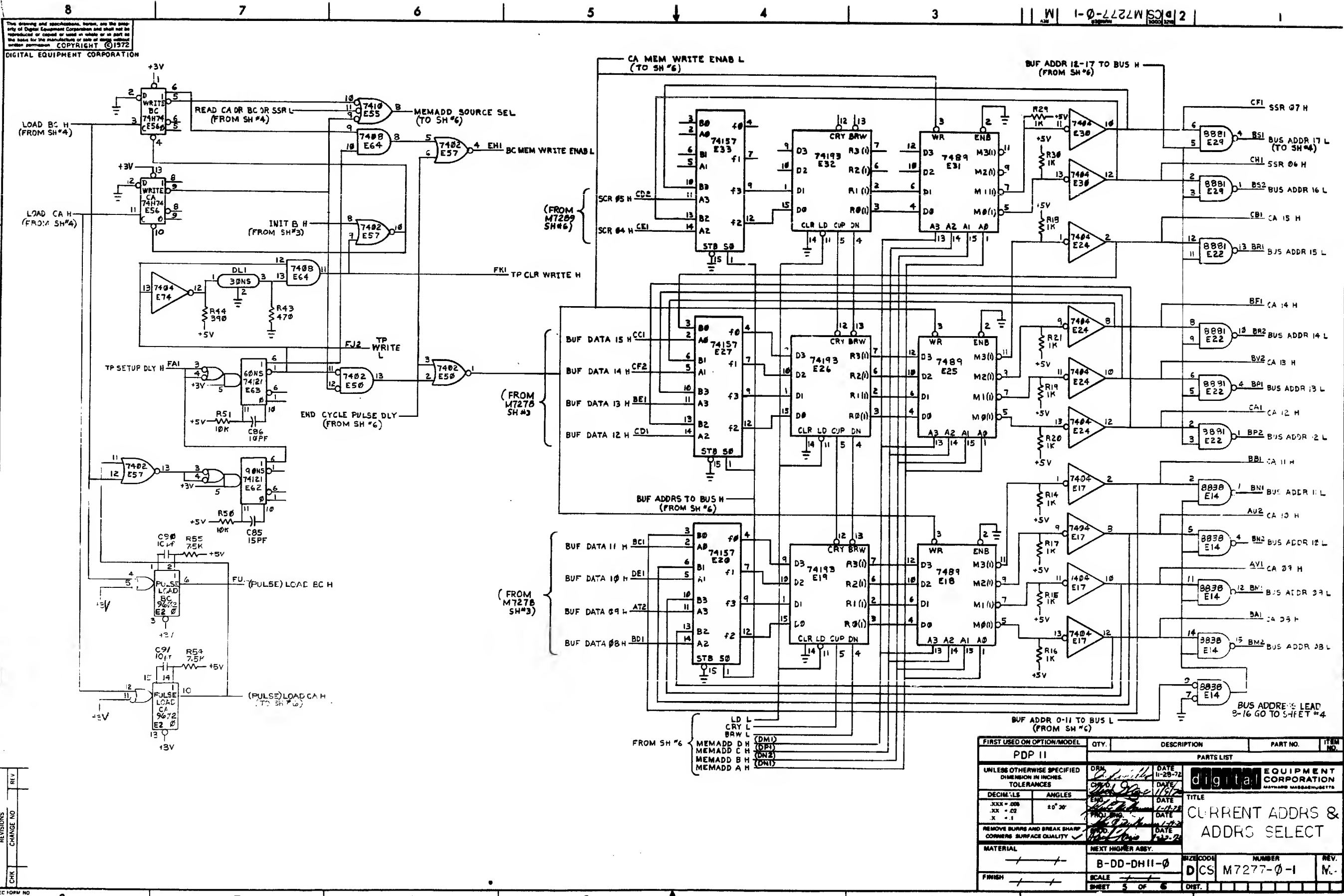
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		X-Y COORDINATE HOLE LOCATION	X-CO-W7277-P-4	1
		ASSY/DRILLING HOLE LAYOUT	0-AH-W7277-P-5	2
		ECO MODULE HISTORY	B-WH-W7277-P-8	3
		ETCHED CIRCUIT BOARD	5010248	4
4	C84, C86, C90, C91	CAP 10.0 MMF 100V 5%	1000006	5
1	C85	CAP 15.0 MMF 100V 5%	1000009 1002427	6
2	C81, C82	CAP 47.0 MMF 100V 5%	1000011	7
2	C83, C 89	CAP 100.0 MMF 100V 5%	1000018	8
1	C86	CAP 470.0 MMF 100V 5%	1000024	9
1	C83	CAP 1000.0 MMF 100V 5%	1000042	10
74	C1 THRU C74	CAP .01 MF 100V 20% DISC	1001810 -01	11
8	E75 THRU C80	CAP 8.8 MF 35V 18% S.TANT	1005306	12
1		HANDLE MODULE	1210711-02	13
1	R35	RES 100 OHMS 1/4W 5%	1300228	14
2	R37, R38	RES 330 OHMS 1/4W 5%	1300285	15
3	R44, R45, R46	RES 390 OHMS 1/4W 5%	1300308	16
3	R41, R42, R43	RES 470 OHMS 1/4W 5%	1300318	17
33	R1 THRU R36, R32, R33, R34	RES 1K OHMS 1/4W 5%	1300385	18
1	R36	RES 3K OHMS 1/4W 5%	1300432	19
1	R82	RES 3.3K OHMS 1/4W 5%	1300439	20
5	R47 THRU R51	RES 10K OHMS 1/4W 5%	1300479	21
2	R30, R40	RES 750 OHMS 1/4W 5%	1301401	22
3	DL1, DL2, DL3	DELAY LINE 30MS	1805528-01	23
1	E53	I.C. DEC 7400	1805575	24
1	E55	I.C. DEC 7410	1805578	25
1	E72	I.C. DEC 7420	1805577	26
2	E68, E71	I.C. DEC 7440	1805578	27
8	E34, E37, E38, E41, E50, E57, E58, E59	I.C. DEC 7402	1809004	28
2	E21, E28	I.C. DEC 8640	1811489	29
2	E86, E73	I.C. DEC 74174	1809087	30
10	E3, E10, E17, E24, E30, E35, E38, E48, E74, E15	I.C. DEC 7404	1809088	31
1	E47	I.C. DEC 74154	1809701	32
2	E28, E29	I.C. DEC 8081	1809705	33
3	E9, E16, E23	I.C. DEC 8242	1800712	34
1	E44	I.C. DEC 7417	1800829	35
8	E5, E12, E18, E26, E82, E48	I.C. DEC 74183	1810018	36
1	E51	I.C. DEC 7442	1810048	37
1	E45	I.C. DEC 74150	1810153	38
5	E52, E58, E84, E85, E70	I.C. DEC 7408	1810155	39
8	E54, E80, E81, E82, E83, E87, E88, E89	I.C. DEC 74121	1810230	40
5	E4, E11, E18, E25, E31	I.C. DEC 7406	1810398	41
10	E8, E13, E20, E27, E33, E39, E40, E46, E43, E48	I.C. DEC 74157	1810835	42
18		SPLIT LUG	8008735	43
12		EYELET (M-4-7)	9800024-01	44
3	E1, E7, E14	I.C. DEC 8838	1811117	45
1	R53	RES. 1.5K 1/4W 5%	1300381	46
A/R		TUBING, THINWALL WHT TFE	9107256-05	47
1	E2	IC DEC 96C2	1910951	48
A/R		WIRE, 30 AWG INSULATED	9105740	49
2	R54, R55	RES 7.5K OHMS 1/4W 5%	1301422	50
A/R	W4 THRU W12	WIRE 22 AWG BUS	9107560-01	51

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST				
ETCH BOARD REV E				
FIRST USED ON OPTION MODEL PDP 11				
NEXT HIGHER ASSY B-DD-DH11-0				
DEC NO.	EIA NO.	DEC NO.	EIA NO.	
SEMICONDUCTOR CONVERSION CHART				
SCALE	NONE			
SHEET	2	OF	5	
DIGITAL EQUIPMENT CORPORATION				
CURRENT ADDR & ADDR SELECT				
NO. 0000	NUMBER			
DCS	M7277-0-1			
REV.	IM			

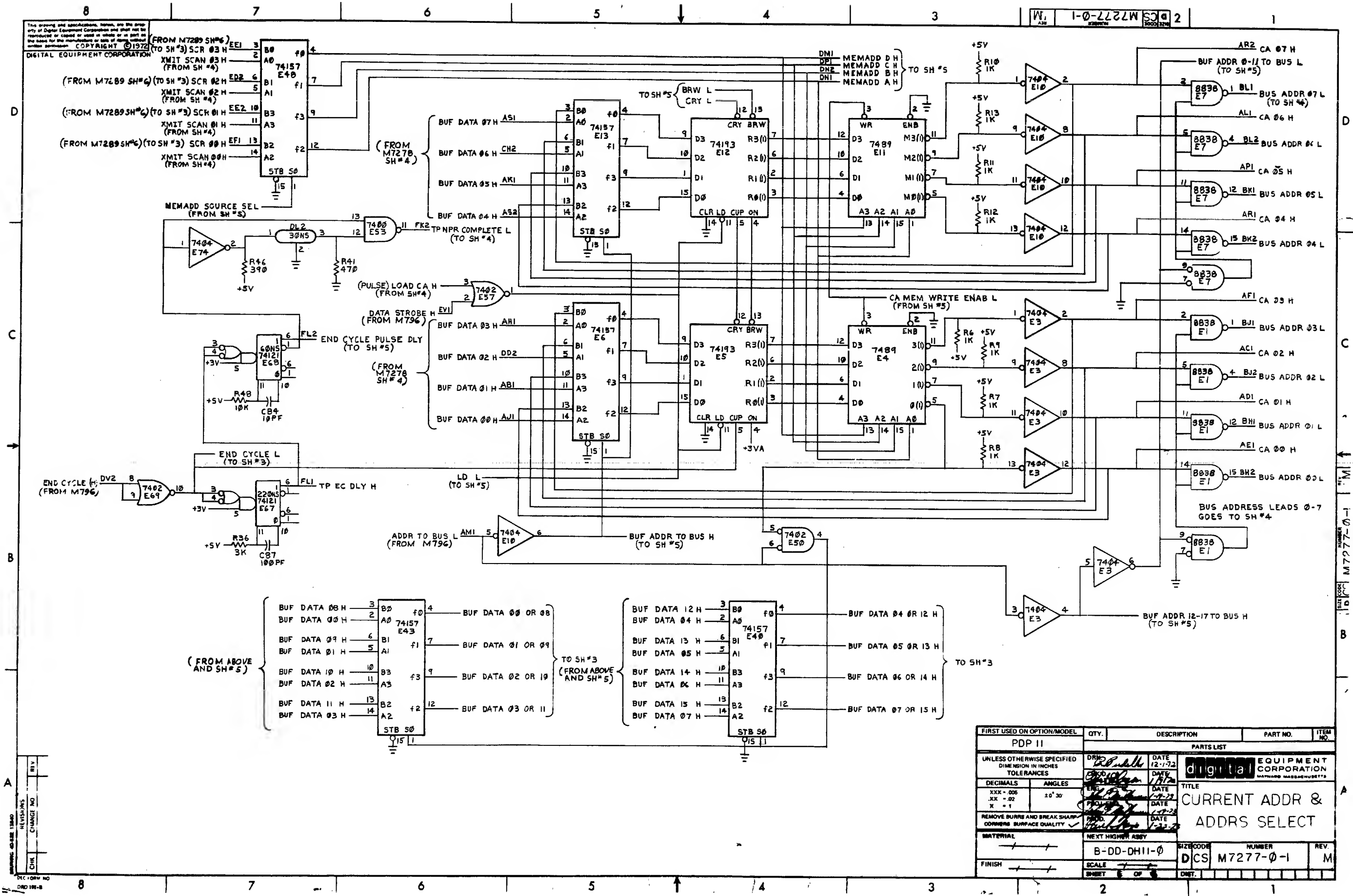


FIRST USED ON OPTION MODEL		QTY.	DESCRIPTION	PART NO.	REV.
PDP II			PARTS LIST		
UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES.		DATE	DATE	EQUIPMENT CORPORATION	
TOLERANCES		REV'D	DATE	HARTFORD CONNECTICUT	
DECIMALS	ANGLES	DATE	DATE	TITLE	
.XXX = .008	± 0° 30'	DATE	DATE	CURRENT ADDR &	
.XX = .02		DATE	DATE	ADDR SELECT	
.X = .1		DATE	DATE		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		DATE	DATE		
MATERIAL	NEXT HIGHER ASSY.	SIZE CODE		NUMBER	REV.
— / — / —	β-DD-DH11-φ	DCS		M7277-φ-1	FM
FINISH	SCALE	SHEET		OF	
— / — / —	1/2" = 1"	DRAWN		DATE	





FIRST USED OR OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP 11					
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES		DATE 11-28-72	digital EQUIPMENT CORPORATION NATURAL MASSACHUSETTS		
DECIMALS .XXX = .000 .XX = .02 .X = .1	ANGLES 20° 30'	DATE 11-28-72	TITLE CURRENT ADDRS & ADDRS SELECT		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		DATE 11-28-72			
MATERIAL FINISH		NEXT HIGHER ASSY. B-DD-DH11-0	SIZE CODE DICS	NUMBER M7277-0-1	REV. M.
		SCALE SHEET 5 OF 6	DST.		



FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP 11					
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES		DATE	PARTS LIST		
DECIMALS	ANGLES	12-1-72	digital EQUIPMENT CORPORATION		
XXX - .005	10' 30"	DATE	TITLE		
.XX - .02		12-1-72	CURRENT ADDR & ADDR SELECT		
X - .1		DATE	REV.		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		DATE	M		
MATERIAL		DATE	B-DD-DH11-0		
FINISH		DATE	SCALE		
		DATE	SHEET 6 OF 6		

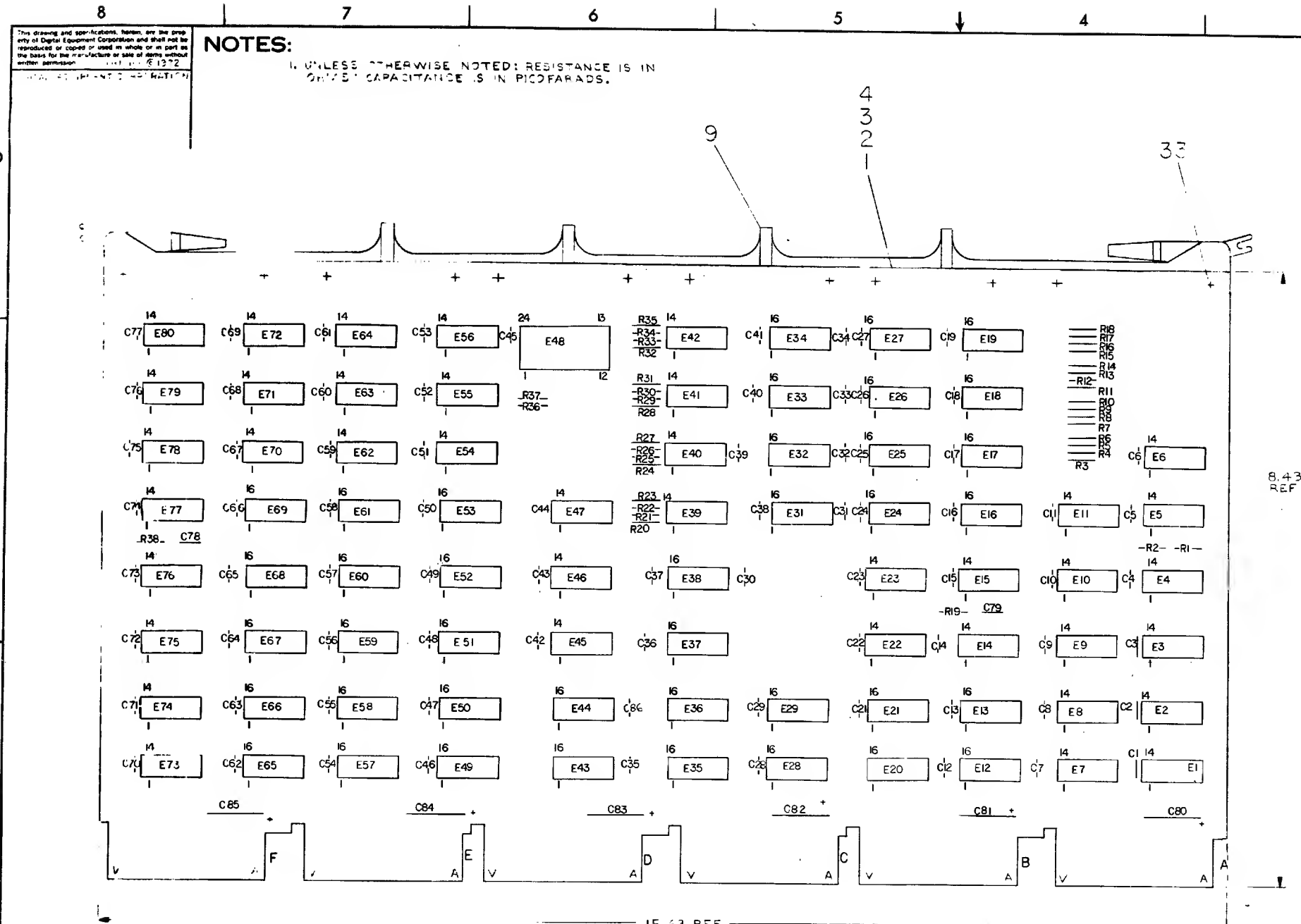
PAGE REVISION CONTROL SHEET

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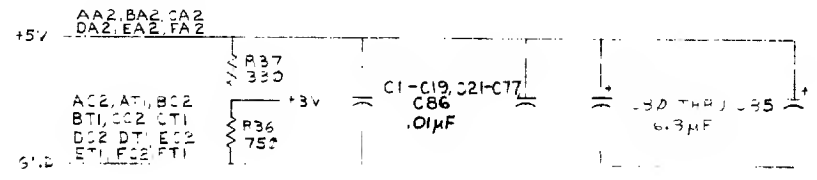
DRN.	DATE	<div style="border: 2px solid black; padding: 5px; text-align: center;"> digital </div> <div style="text-align: center;"> EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS </div>
CHG.	12-15-72	
ENG.	DATE	
PROJ. ENG.	DATE	
PROD.	DATE	
SCALE	NONE	
B-DD-DH11- ϕ		
NEXT HIGHER ASSY.		
<div style="border: 1px solid black; padding: 10px; text-align: center;"> <h1>REG 8 BYTE CNT</h1> </div>		
TITLE		
SIZE	CODE	NUMBER
B	CS	M7278- ϕ -1
		REV.
		D



NOTES:
1. UNLESS OTHERWISE NOTED: RESISTANCE IS IN OHMS. CAPACITANCE IS IN PICOFARADS.

REF	REF	X-Y COORDINATE HOLE LOCATION	K-C0-M7278-B-4	1
REF	REF	ASSY DRILLING HOLE LAYOUT	D-AH-M7278-B-5	2
REF	REF	MODULE ECO HISTORY	B-MH-M7278-B-6	3
1		ETCHED CIRCUIT BOARD	5010247	4
1	C78	CAP 1000 PF 100V ± 5% O.M.	1000042	5
77	C1-C19, C21-C77, C86	CAP .01 MF 100V ± 20% DISC	1001610	6
1	C78	CAP 27 PF 100V ± 5% O.M.	1001739	7
6	C80 THRU C85	CAP 6.8 MF 35V ± 10% S. TANT	1005306	8
1		HANDLE MODULE	1210711-2	9
1	R37	RES 330 1/4W ± 5%	1300295	10
34	R1 THRU R18, R20 THRU R35	RES 1K 1/4W ± 5%	1300365	11
1	R39	RES 1.5K 1/4W ± 5%	1300391	12
1	R19	RES 2.2K 1/4W ± 5%	1300417	13
1	R36	RES 750 1/4W ± 5%	1301401	14
8	E54, E55, E82, E83, E70, E71, E78, E79	I.C. DEC 7474	1905547	15
4	E45, E46, E75, E76	I.C. DEC 7400	1905575	16
1	E15	I.C. DEC 7420	1905577	17
1	E47	I.C. DEC 7402	1909004	18
4	E3, E4, E9, E10	I.C. DEC 7404	1911469	19
4	E39 THRU E42	I.C. DEC 7404	1909686	20
1	E48	I.C. DEC 74154	1909701	21
4	E1, E2, E7, E8	I.C. DEC 8081	1909705	22
2	E22, E23	I.C. DEC 8015	1909713	23
3	E5, E6, E11	I.C. DEC 7417	1909929	24
16	E12, E13, E20, E21, E28, E29, E35, E36, E43, E44, E49, E50, E57, E58, E65, E66	I.C. DEC 74151	1909936	25
4	E24 THRU E27	I.C. DEC 74193	1910018	26
2	E73, E74	I.C. DEC 7437	1910091	27
4	E56, E64, E72, E80	I.C. DEC 7403	1910155	28
2	E14, E77	I.C. DEC 74121	1910230	29
4	E31 THRU E34	I.C. DEC 7489	1910396	30
11	E37, E39, E51, E52, E53, E59, E60, E61, E67, E68, E69	I.C. DEC 74175	1910651	31
4	E16 THRU E19	I.C. DEC 74157	1910655	32
12		EYELET (5S-3-7)	9006732	33

DEC FORM NO. 100-1234	
IC TYPE	GND +5V
GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY. EXCEPTIONS ARE STATED ABOVE.	
IC PIN LOCATIONS	

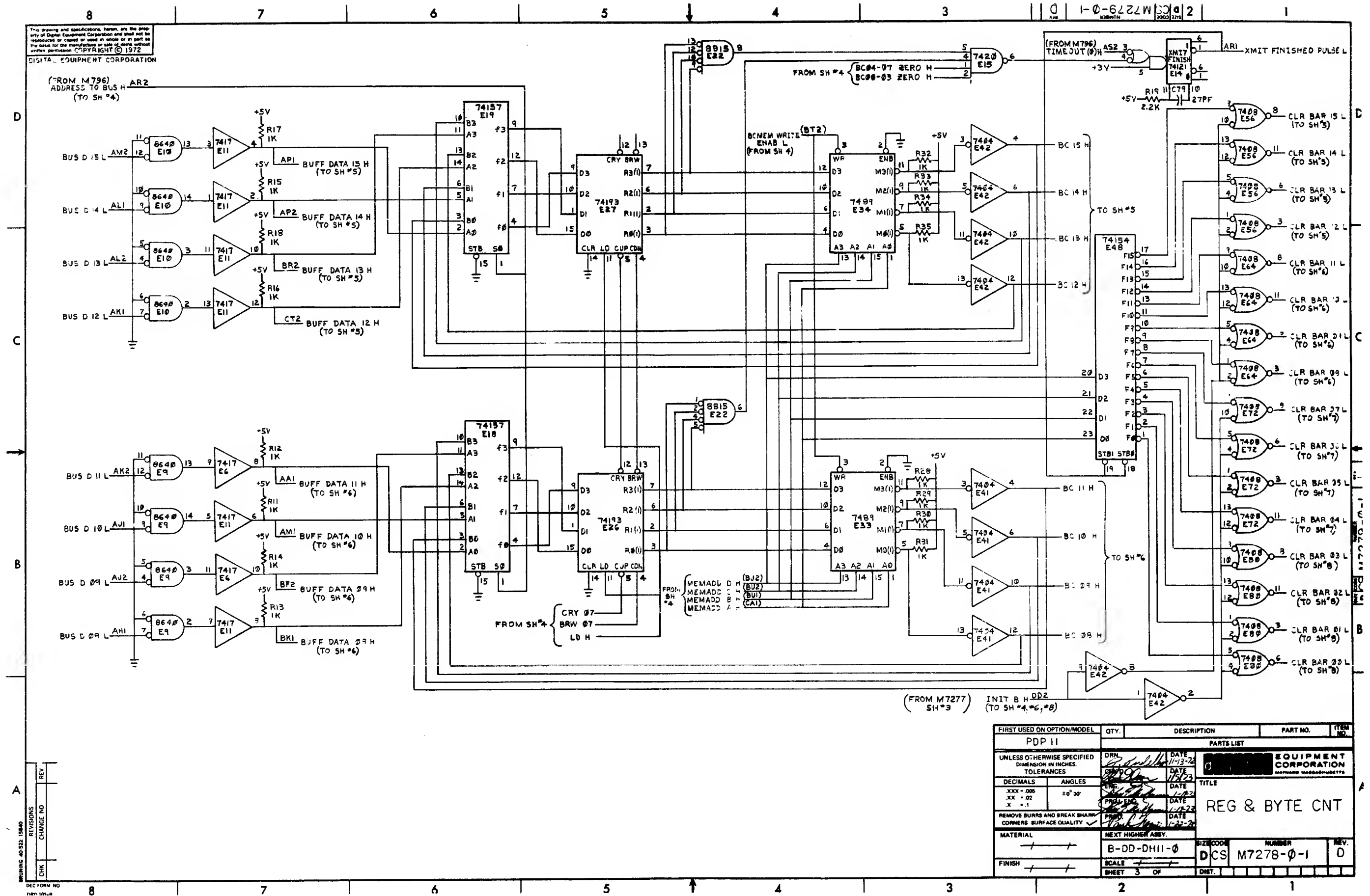


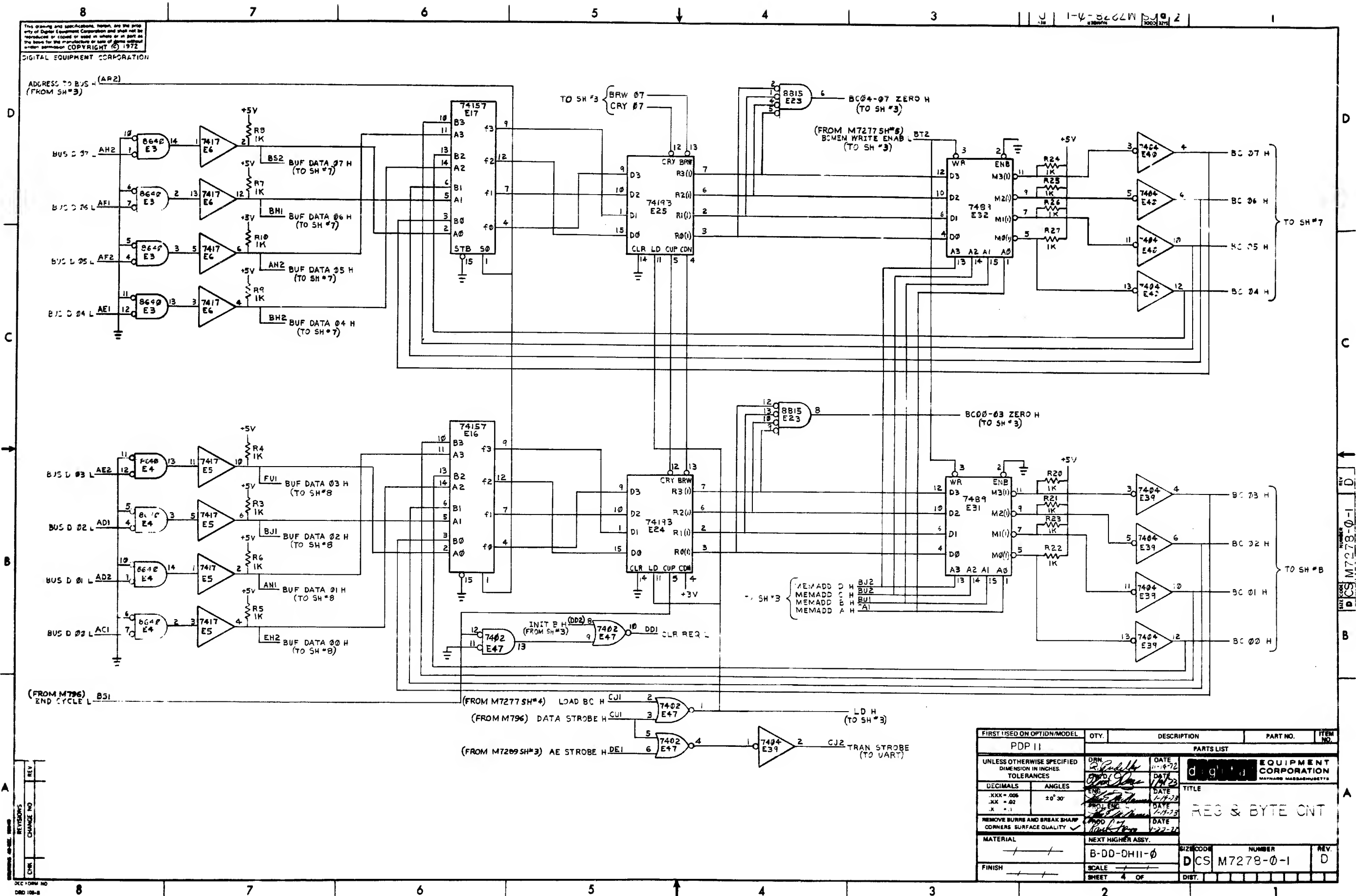
QTY	REF	DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST					
ETCH BOARD REV C					
PDP II					
NEXT HIGHER ASSY					
B-DD-DH11-0					
SCALE NONE					
SHEET 2 OF 2					
DIST.					

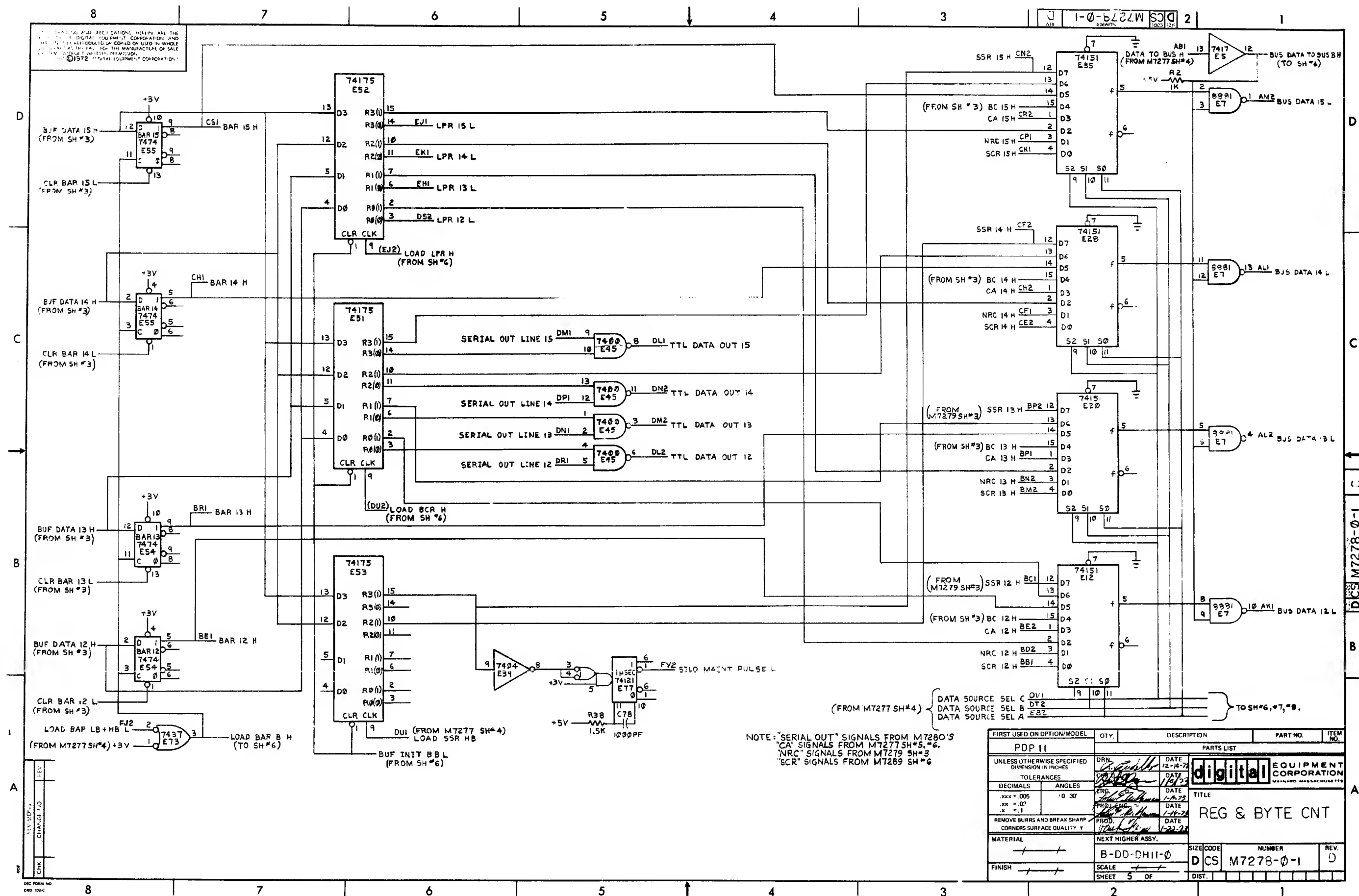
digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

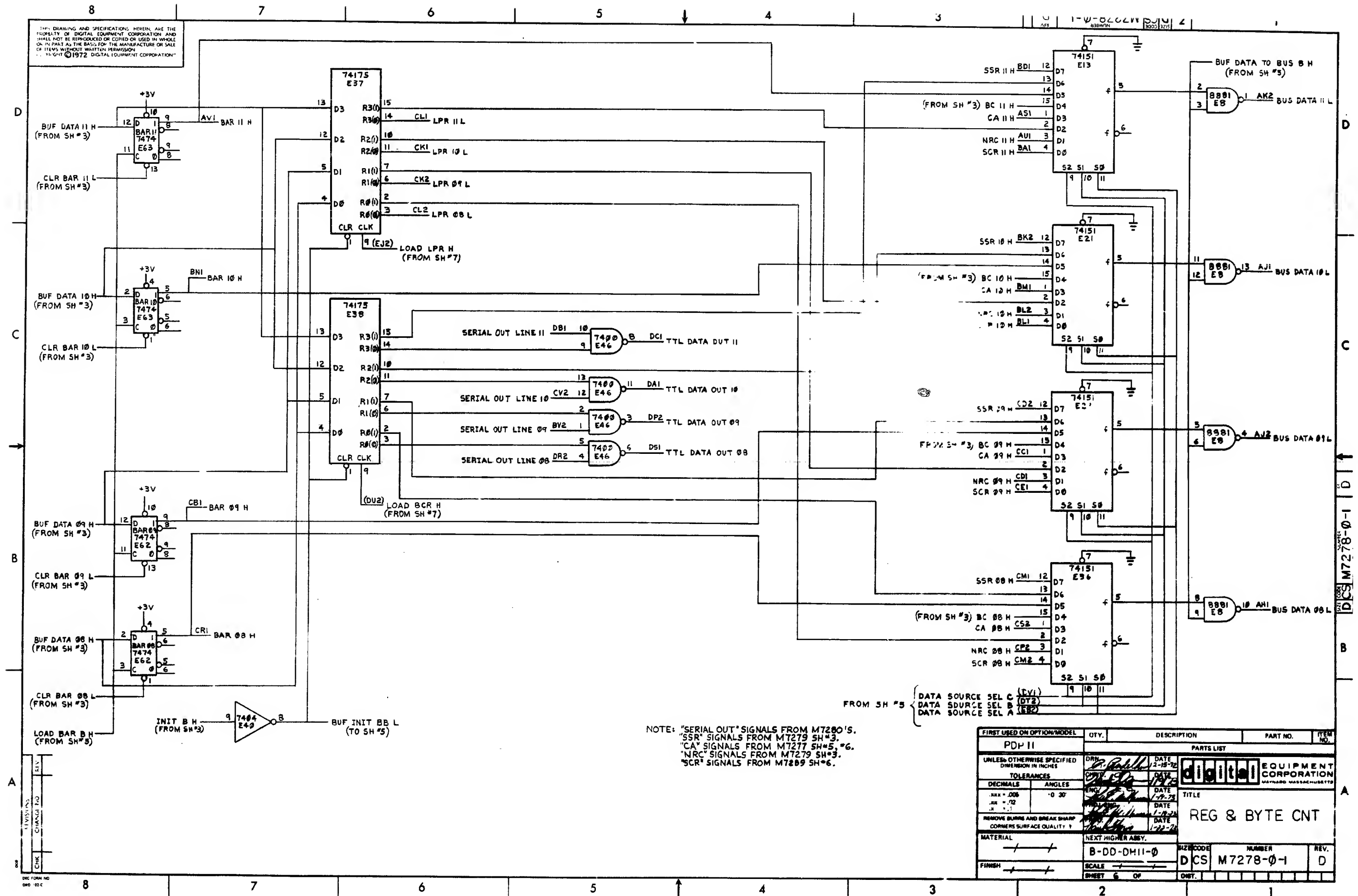
REG & BYTE CNT

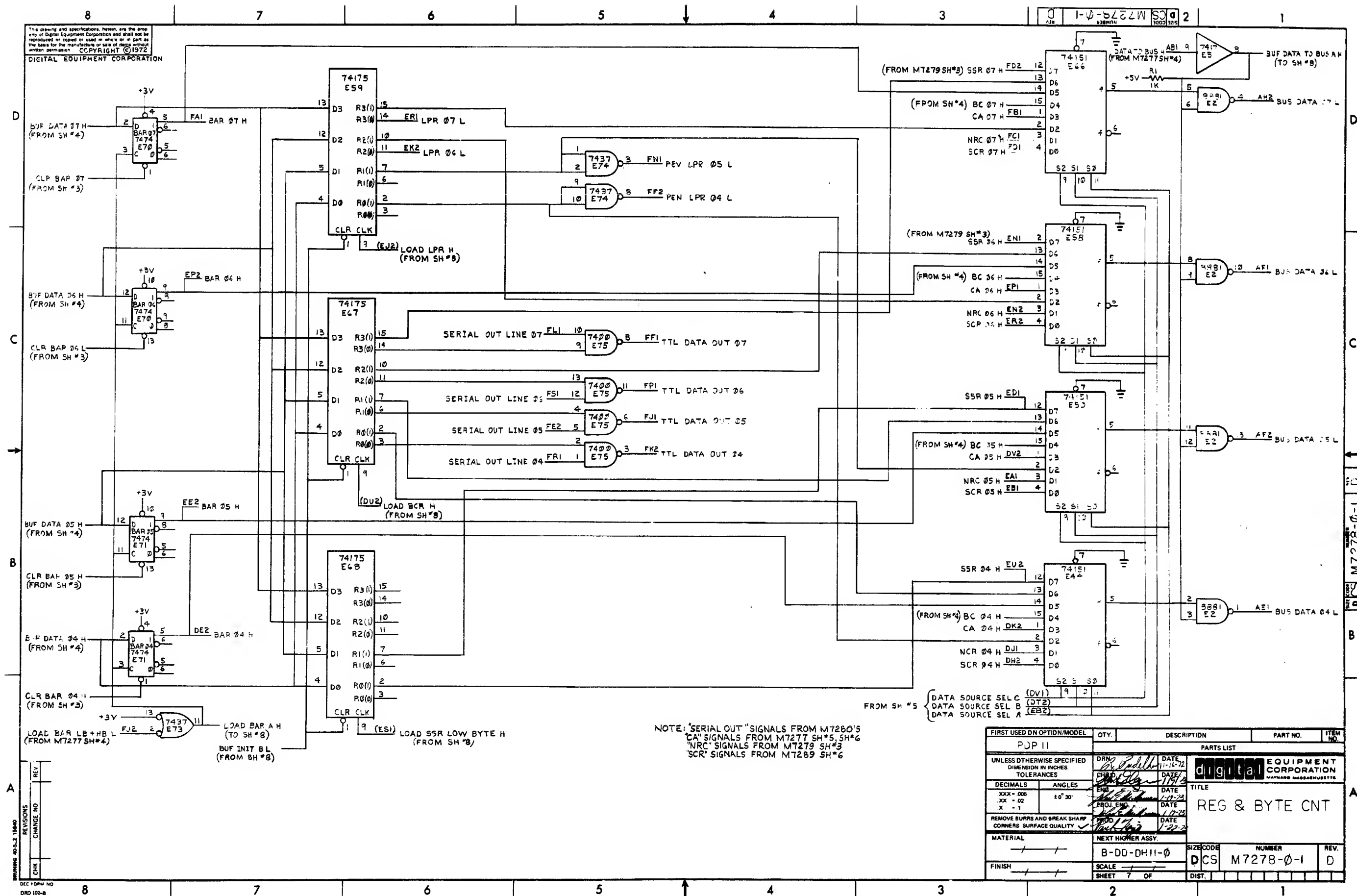
DCS M7278-B-4

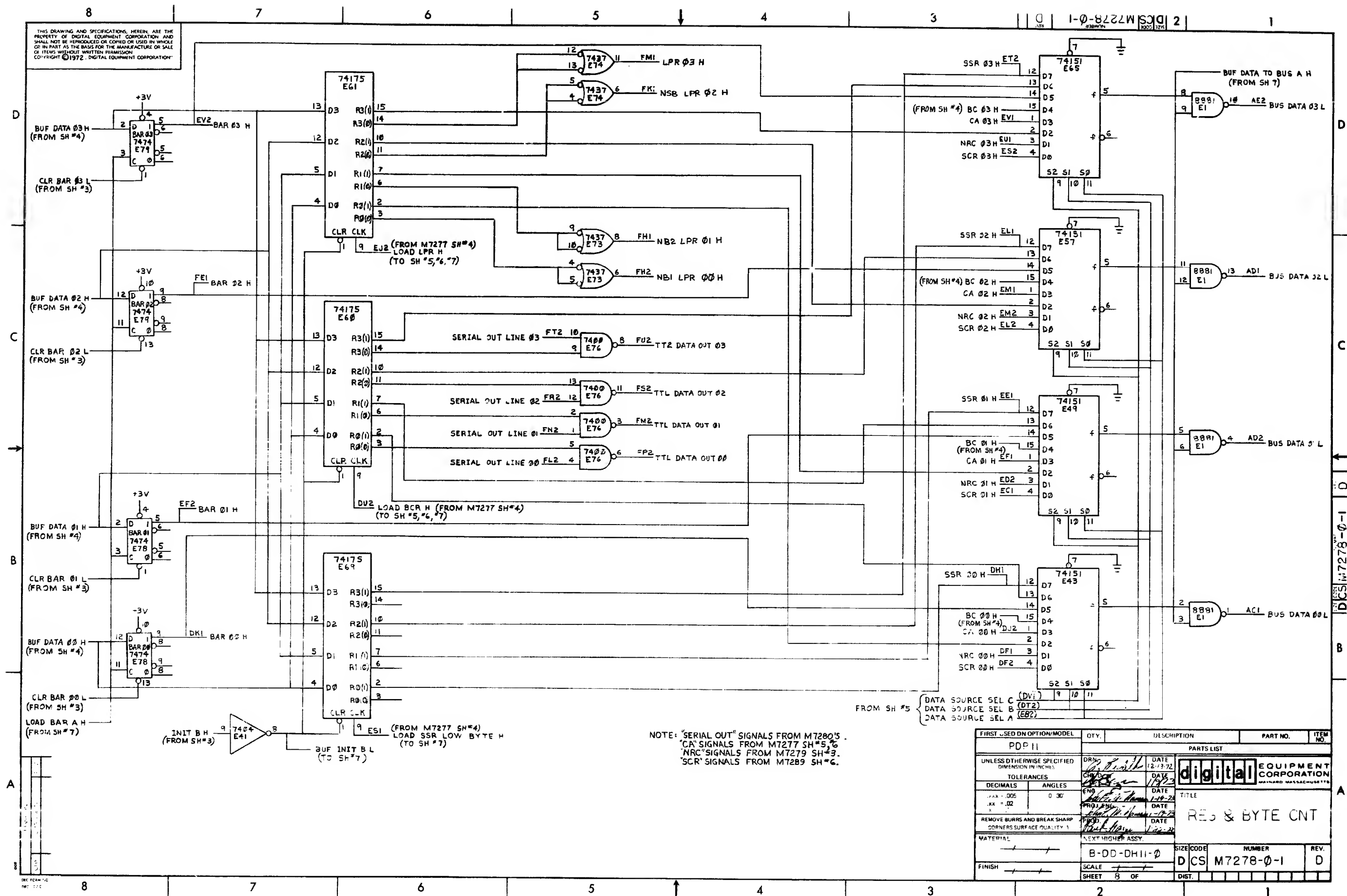




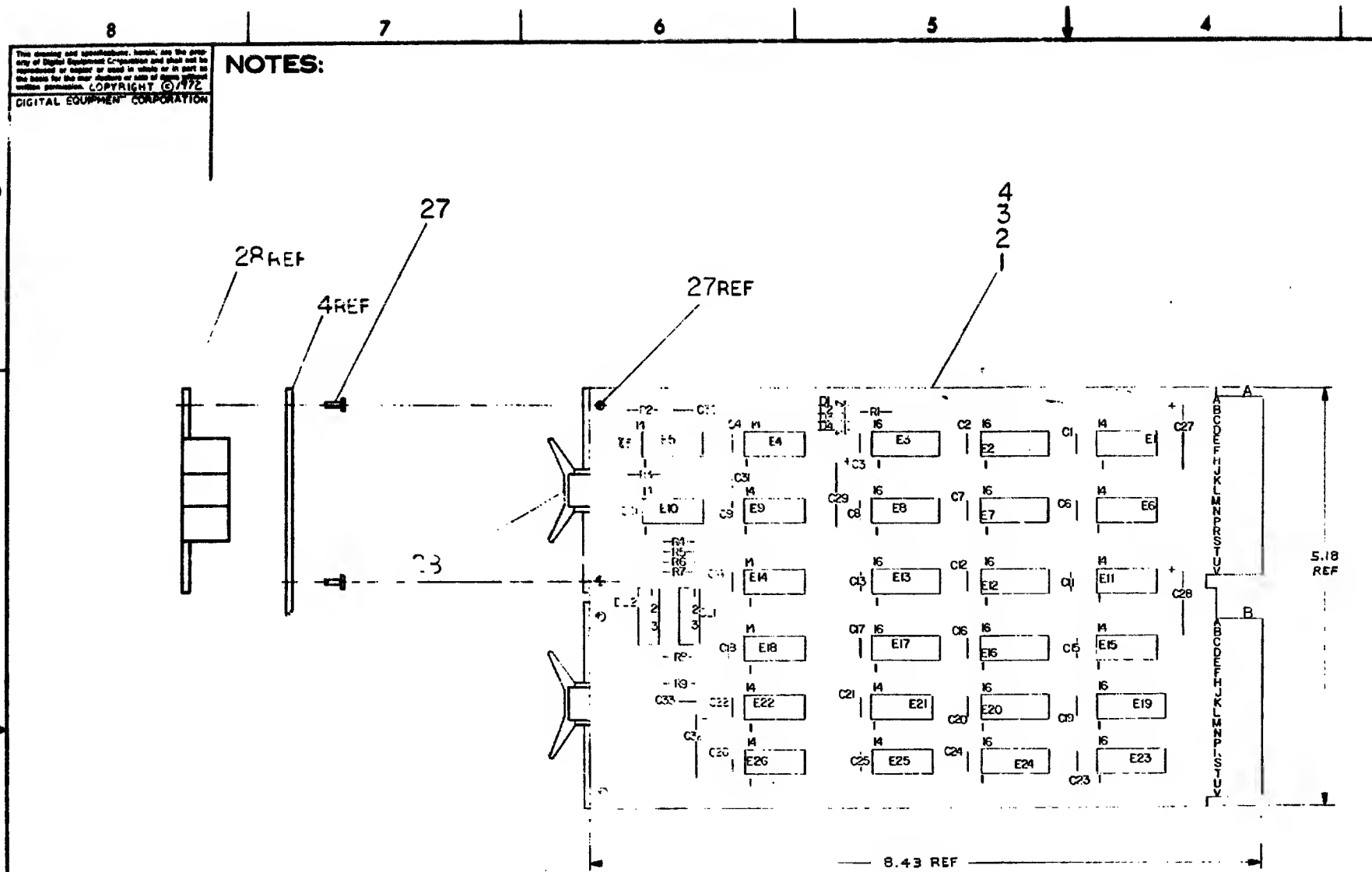




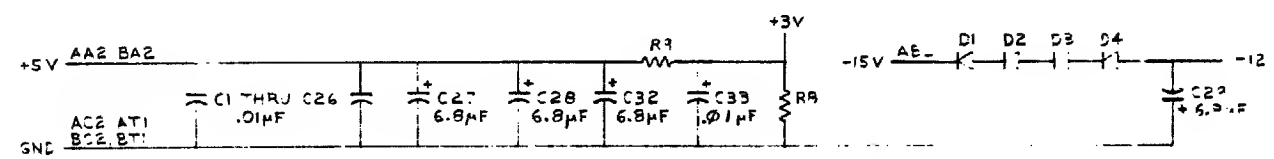




FIRST USED DN OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP 11					
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES		PARTS LIST			
TOLERANCES		DRY	DATE	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
DECIMALS	ANGLES	CHK'D	DATE	TITLE	
XXX - .005	0 30'	ENG	DATE	REG & BYTE CNT	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY 1		PROJ. MGR.	DATE	REV.	
MATERIAL		DATE	D		
FINISH		B-DD-DH11-0		SIZE CODE	NUMBER
SCALE		D CS		M7278-0-1	REV.
SHEET 8 OF		DIST.		D	



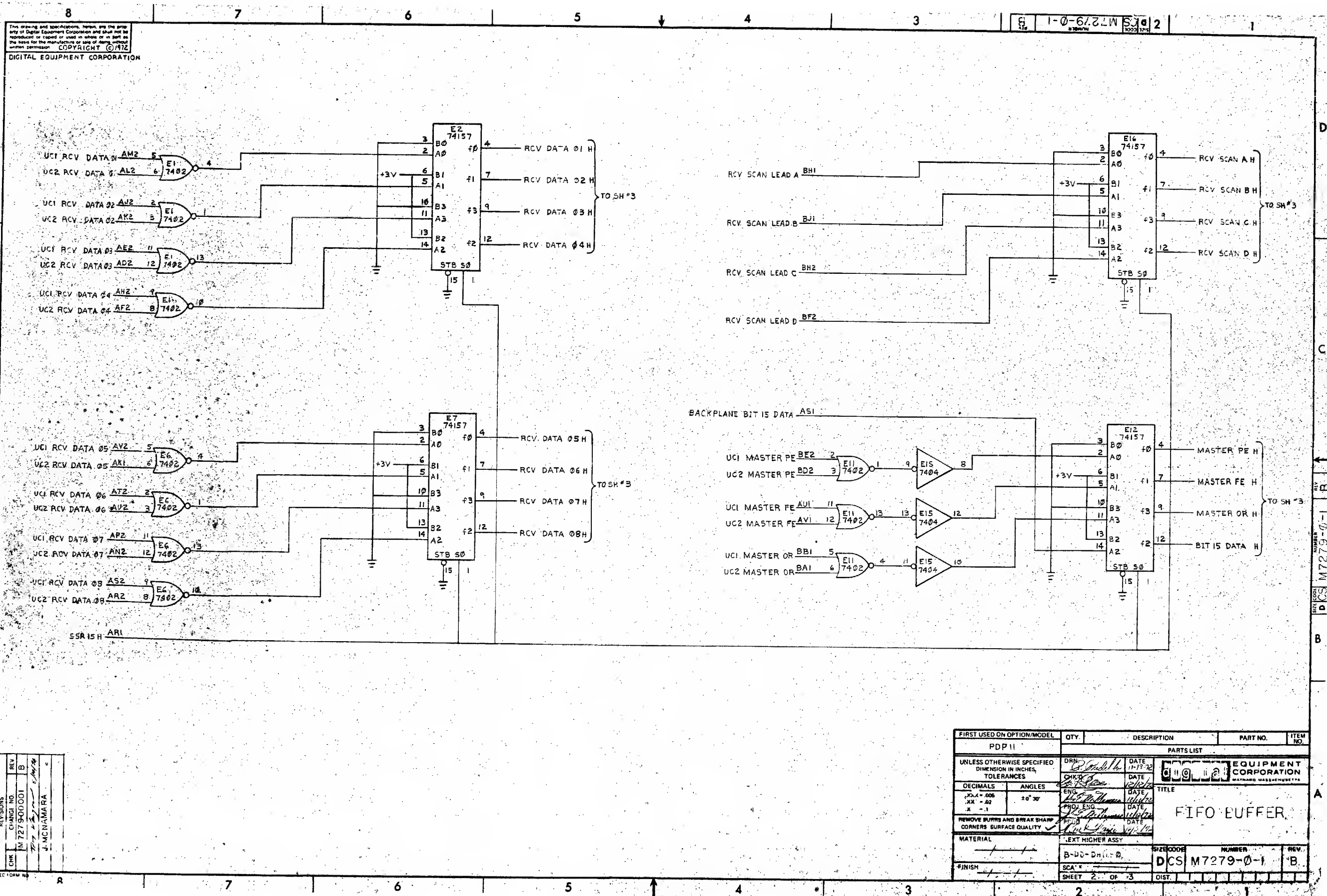
REF	DESCRIPTION	QTY	ITEM NO.
REF	X-Y COORDINATE HOLE LOCATION		K-CO-M7279-0-4 1
REF	ASSY/DRILLING HOLE LAYOUT		0-AH-M7279-0-5 2
REF	MODULE ECO HISTORY		8-MH-M7279-0-6 3
1	ETCHED CIRCUIT BOARD	5010248	4
1	CAP 100 PF 100V 5%	1000016	5
4	C27, C28, C29, C32	CAP 8.8 MFD 35V 20% S. TANT	1000067 6
27	C1, C26, C33	CAP .01 MFD 100V 20% DISC	1001610 7
1	C31	CAP 15 PF 100V 5%	1002427 8
4	01-04	DIODE 0684	1100114 9
3	R4, R5, R9	RES 330 1/4W 5%	1300295 10
2	R6, R7	RES 470 1/4W 5%	1300318 11
1	R1	RES 1K 1/4W 5%	1300365 12
1	R2	RES 2.2K 1/4W 5%	1300417 13
1	R8	RES 750 1/4W 5%	1301401 14
1	R3	RES 7.5K 1/4W 5%	1301422 15
2	DL1, DL2	DELAY LINE 30NS	1605528 16
1	E14	I.C. DEC 7400	1305575 17
1	E9	I.C. DEC 7420	1905577 18
4	E1, E6, E11, E26	I.C. DEC 7402	1909004 19
3	E18, E21, E25	I.C. DEC 74H74	1909667 20
3	E4, E15, E22	I.C. DEC 7404	1909686 21
2	E20, E24	I.C. DEC 74193	1910018 22
2	E19, E23	I.C. DEC 7485	1910224 23
2	E5, E10	I.C. DEC 74121	1310230 24
4	E2, E7, E12, E16	I.C. DEC 74157	1910635 25
4	E3, E8, E13, E17	I.C. DEC 3341	
4	EYELETS		9006732 27
2	HANDLE FLIP CHIP MACHINA		9006337 6



IC TYPE	GND	+5V
3341	8	16
DEC 7485	8	16
DEC 74153	8	16
DEC 74157	8	5
IC TYPE	GND	+5V
GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY EXCEPTIONS ARE STATED ABOVE		
IC PIN LOCATIONS		

FIRST USED ON OPTION MODEL		QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
PDP 11		PARTS LIST				
ETCH BOARD REV		C				
REV		DATE 12-26-72				
J. MCNAMARA		DATE 1/1/73				
M7279-0-001		DATE 1/1/73				
ORIGINAL		DATE 1/1/73				
CHANGE NO.		DATE 1/1/73				
REV		DATE 1/1/73				
CHK		DATE 1/1/73				
DEC NO.		EIA NO.	DEC NO.	EIA NO.	NEXT HIGHER ASSY	
B-00-DH11-0		B-00-DH11-0				
SCALE		NOTES				
SHEET		OF 3				
DIBT.		DIBT.				

EQUIPMENT CORPORATION		MAYNARD MASSACHUSETTS	
TITLE			
FIFO BUFFER			
SIZE CODE	NUMBER	REV.	
DCS	M7279-0-1	B	



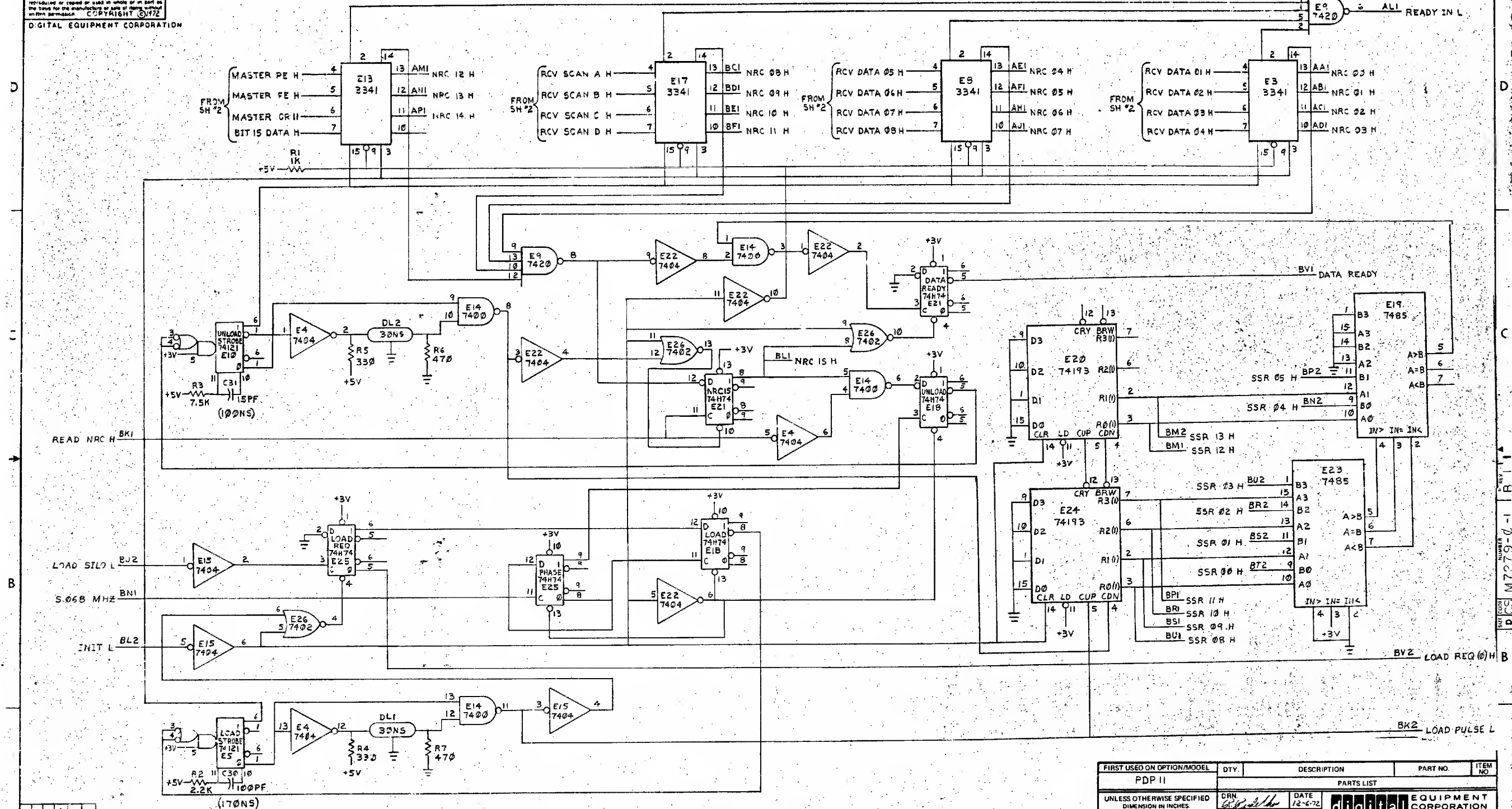
REVISIONS

REV	CHG	NO	BY	DATE
1	1	7279-00001	B	11/13/72

J. MCNAMARA

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP 11				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES	DRN	DATE	EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS	
DECIMALS	ANGLES	DATE	TITLE	
.XXX - .006	± 0° 30'	DATE	FIFO BUFFER	
.XX - .02		DATE		
.X - .1		DATE		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	DATE	DATE		
MATERIAL	EXT HIGHER ASSY	DATE		
FINISH	B-000-DH-1-0	DATE		
	SCA	DATE		
	SHEET 2 OF 3	DATE		

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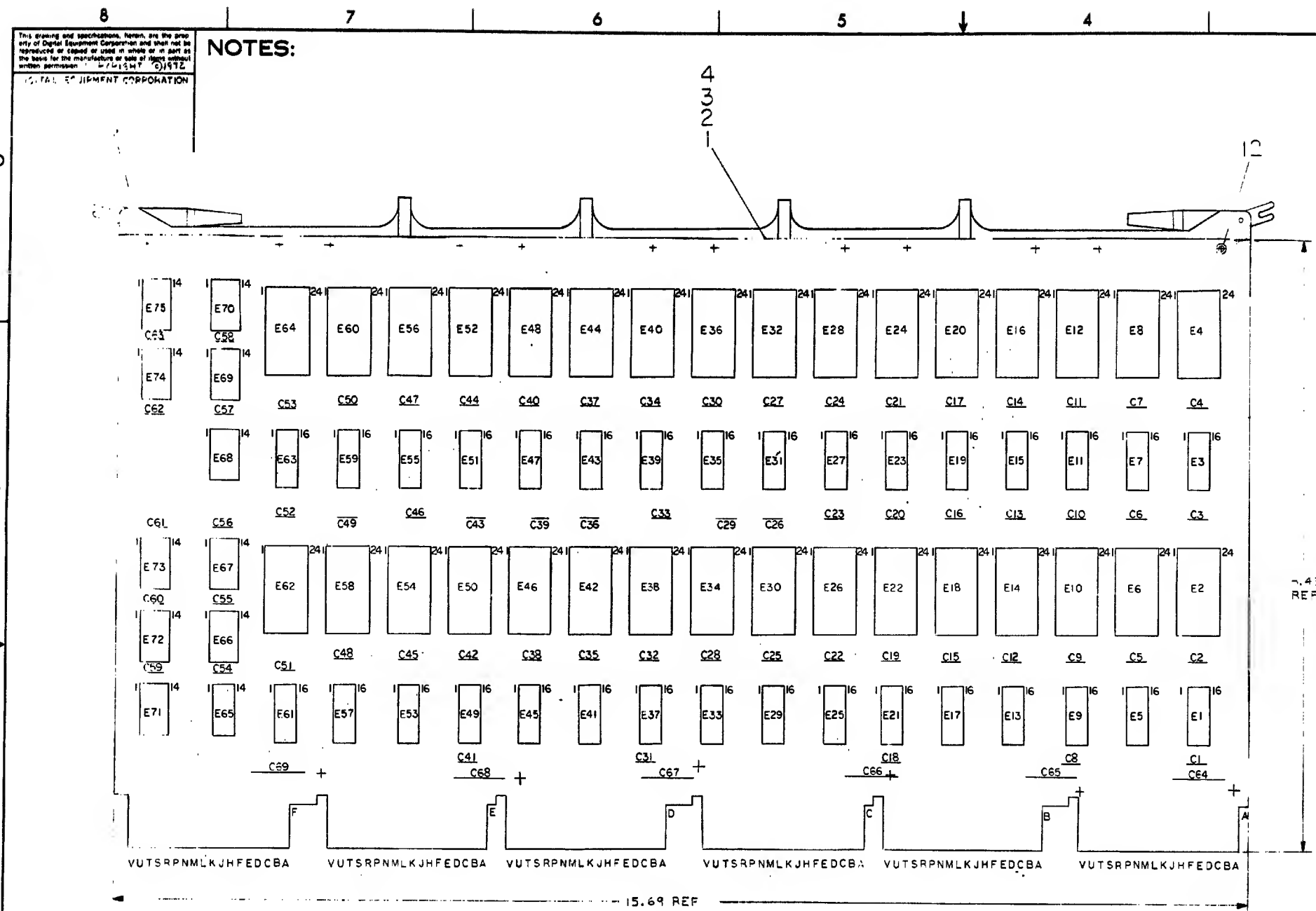
FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP 11					
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES		DATE	PARTS LIST		
TOLERANCES		DATE	digital EQUIPMENT CORPORATION		
DECIMALS	ANGLES	DATE	TITLE		
XXX - .005	± 0° 30'	DATE	FIFO BUFFER		
XX - .02		DATE			
X - .1		DATE			
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		DATE			
MATERIAL		NEXT HIGH: R ASSY.	SIZE CODE	NUMBER	REV
FINISH		B-DD-DH11-0	D CS	M7279-0-1	B
		SCALE			
		SHEET			

REV.	CHG.	NO.	DATE	BY	CHK.
1		1	12-6-72	J. MCNAMARA	
2		2	12-6-72	J. MCNAMARA	
3		3	12-6-72	J. MCNAMARA	
4		4	12-6-72	J. MCNAMARA	
5		5	12-6-72	J. MCNAMARA	
6		6	12-6-72	J. MCNAMARA	
7		7	12-6-72	J. MCNAMARA	
8		8	12-6-72	J. MCNAMARA	
9		9	12-6-72	J. MCNAMARA	
10		10	12-6-72	J. MCNAMARA	

BRUNING 40522 1894Q
DLC FORM NO
DRD 102-B

PAGE REVISION CONTROL SHEET

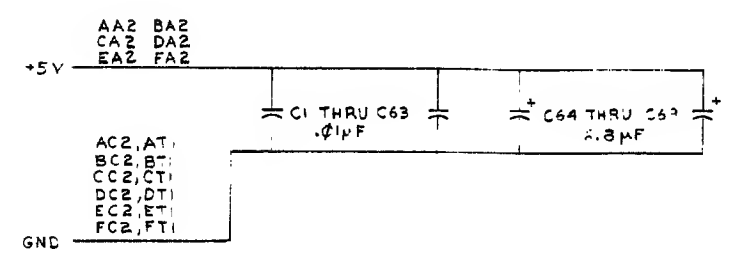
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1-0-5872W 2

REF	X-Y COORDINATE HOLE LOCATION	K-C3-M7288-B-4	1
REF	ASSY/DRILLING HOLE LAYOUT	0-AH-M7288-B-5	2
REF	MODULE ECO HISTORY	0-MH-M7288-B-6	3
1	ETCHED CIRCUIT BOARD	5010255	4
6	C64 THRU C68	CAP 6.8 MF 35V 20% TANT	5
63	C1 THRU C63	CAP .01 MF 100V 20% DISC	6
1	HANDLE MODULE	1000067	7
11	E65 THRU E75	I.C. DEC 7437	8
32	E2, E4, E6, E8, E10, E12, E14, E16, E18, E20, E22, E24, E26, E28, E30, E32, E34, E36, E38, E40, E42, E44, E46, E48, E50, E52, E54, E56, E58, E60, E62, E64	I.C. DEC 74150	9
18	E17, E19, E21, E23, E25, E27, E29, E31, E33, E35, E37, E39, E41, E43, E45, E47, E49, E51, E53, E55, E57, E59, E61, E63	I.C. DEC 74175	10
18	E1, E3, E5, E7, E9, E11, E13, E15, E17, E19, E21, E23, E25, E27, E29, E31, E33, E35, E37, E39, E41, E43, E45, E47	I.C. DEC 74174	11
12	EYELET	55-3-1	12

DEC 74175	8	16
DEC 74174	8	14
DEC 74152	12	24
IC TYPE	GND	+5V
GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY. EXCEPTIONS ARE STATED ABOVE.		
IC PIN LOCATIONS		

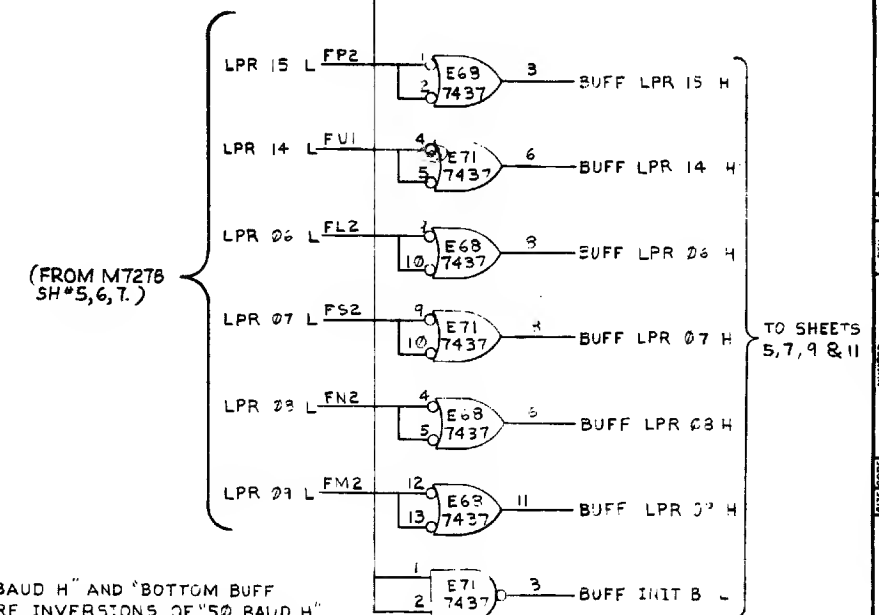
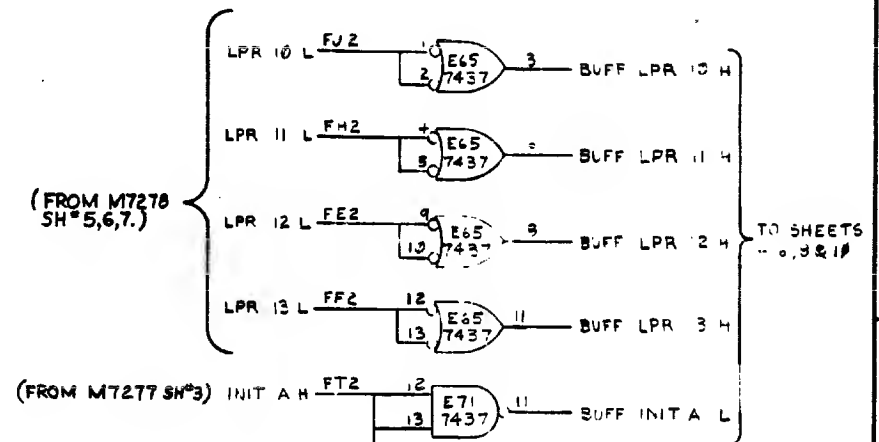
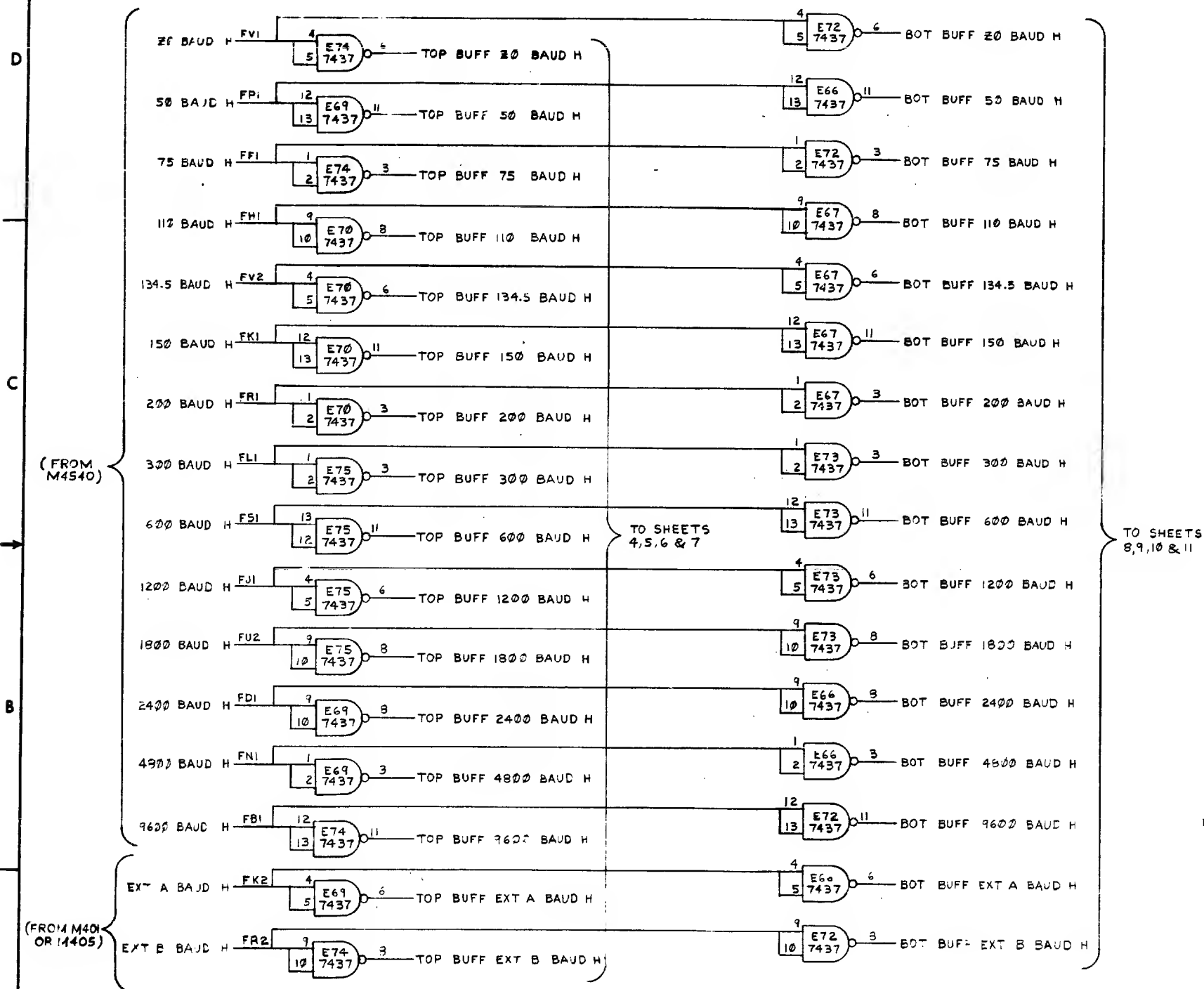


QTY	REF	DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
FIRST USED ON OPTION MODEL					
PDP 11					
ETCH BOARD REV A B					
PARTS LIST					
DRN DATE 11/1/72					
CHKD DATE 11/1/72					
ENG DATE 11/1/72					
PROJ ENG DATE 11/1/72					
PROD DATE 11/1/72					
NEXT HIGHER ASSY					
B-DD-DH11-2					
DEC NO.	EIA NO.	DEC NO.	EIA NO.	SCALE	NONE
SEMICONDUCTOR CONVERSION CHART					
SHEET 2 OF					

digital EQUIPMENT CORPORATION	MAINTENANCE
TITLE	
DH11 LINE	
PARAMETER	
CONTROL	
SIZE CODE	NUMBER
DCS	M7288-2-1
SCALE	NONE
SHEET	2 OF
DIST.	

BRUNING 40-523 16898
DEC FORM NO
DND-135A

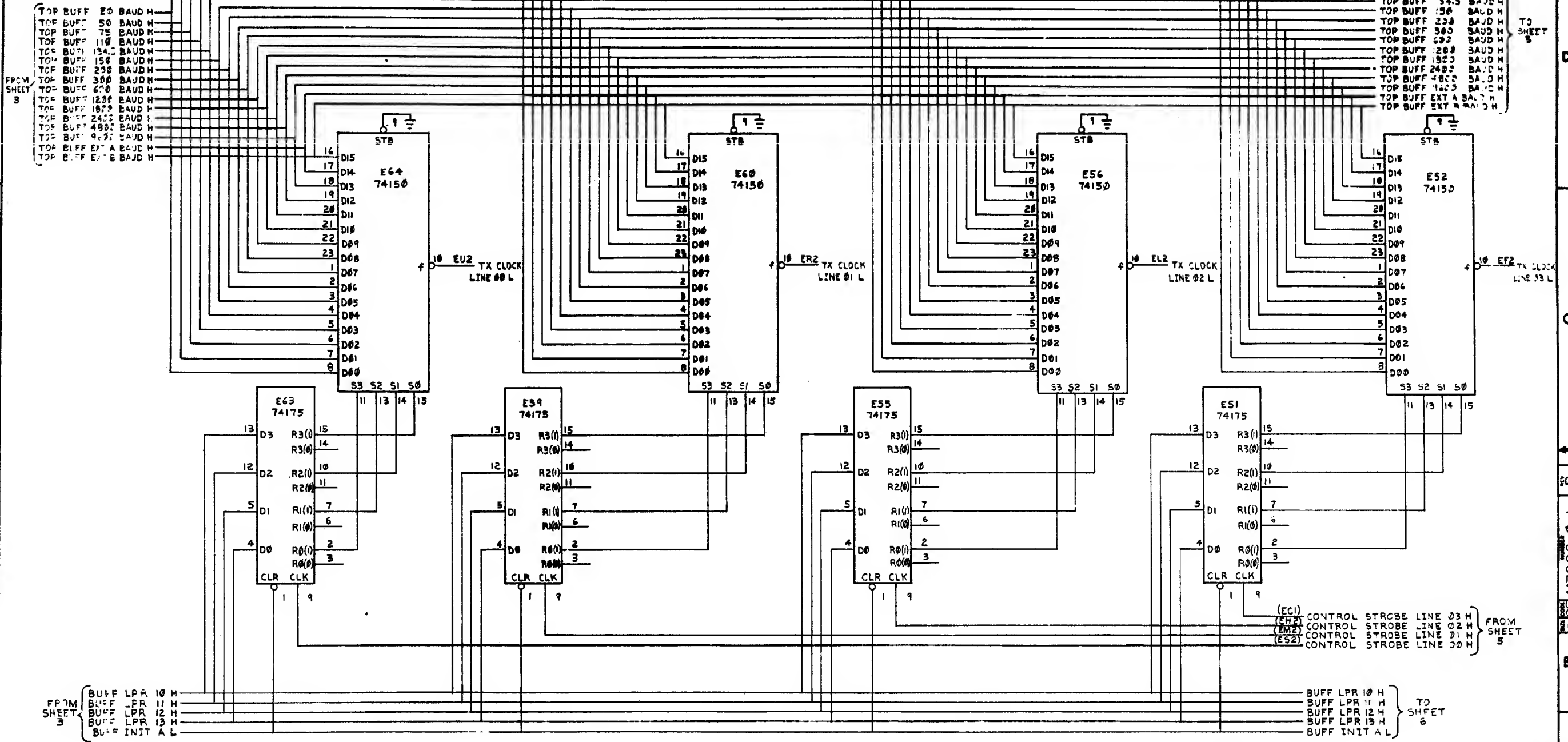
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NOTE:
"TOP BUFF 50 BAUD H" AND "BOTTOM BUFF 50 BAUD H" ARE INVERSIONS OF "50 BAUD H"

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	REV.
PDP 11				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES				
DECIMALS	ANGLES	DATE	EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
.XXX - .005	±0° 30'	10-16-72	TITLE DH11 LINE PARAMETER CONTROL	
.XX - .02		DATE	NUMBER M7288-0-1	
.X - 1		DATE	REV. B	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY				
MATERIAL	NEXT HIGHER ASSY.		SIZE CODE	DIST.
FINISH	SCALE		NUMBER	
SHEET 3 OF				

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REV	CHG	NO	DATE
1			
2			
3			
4			
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6			
7			
8			

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	TYPE
PDP 11				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES				
DECIMALS	ANGLES			
.XXX - .006	± 0° 30'			
.XX - .02				
.X - .1				
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY				
MATERIAL				
NEXT HIGHER ASSY.				
FINISH				
SCALE				
SHEET 4 OF				
DISTRIBUTION				
EQUIPMENT CORPORATION				
TITLE				
DH11 LINE PARAMETER CONTROL				
B-CD-DH11-0				
DISTRIBUTION				
M7288-0-1				
REV. B				

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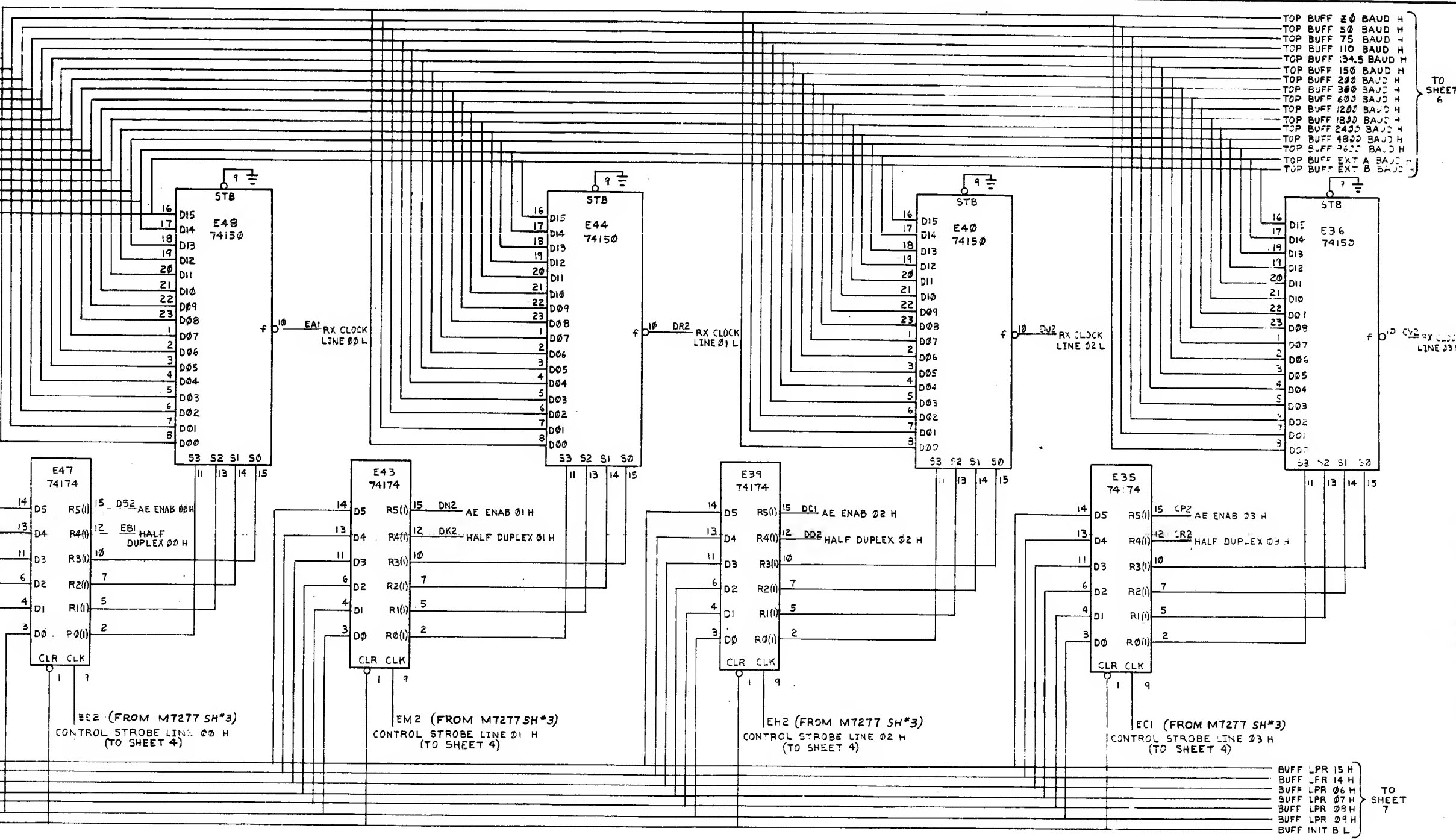
DIGITAL EQUIPMENT CORPORATION

FROM SHEET 4

TOP BUFF 80 BAUD H
TOP BUFF 50 BAUD H
TOP BUFF 75 BAUD H
TOP BUFF 110 BAUD H
TOP BUFF 134.5 BAUD H
TOP BUFF 150 BAUD H
TOP BUFF 200 BAUD H
TOP BUFF 300 BAUD H
TOP BUFF 600 BAUD H
TOP BUFF 1200 BAUD H
TOP BUFF 1800 BAUD H
TOP BUFF 2400 BAUD H
TOP BUFF 4800 BAUD H
TOP BUFF 9600 BAUD H
TOP BUFF EXT A BAUD H
TOP BUFF EXT B BAUD H

TO SHEET 6

TOP BUFF 80 BAUD H
TOP BUFF 50 BAUD H
TOP BUFF 75 BAUD H
TOP BUFF 110 BAUD H
TOP BUFF 134.5 BAUD H
TOP BUFF 150 BAUD H
TOP BUFF 200 BAUD H
TOP BUFF 300 BAUD H
TOP BUFF 600 BAUD H
TOP BUFF 1200 BAUD H
TOP BUFF 1800 BAUD H
TOP BUFF 2400 BAUD H
TOP BUFF 4800 BAUD H
TOP BUFF 9600 BAUD H
TOP BUFF EXT A BAUD H
TOP BUFF EXT B BAUD H



FROM SHEET 3

BUFF LPR 15 H
BUFF LPR 14 H
BUFF LPR 06 H
BUFF LPR 07 H
BUFF LPR 08 H
BUFF LPR 09 H
BUFF INIT B L

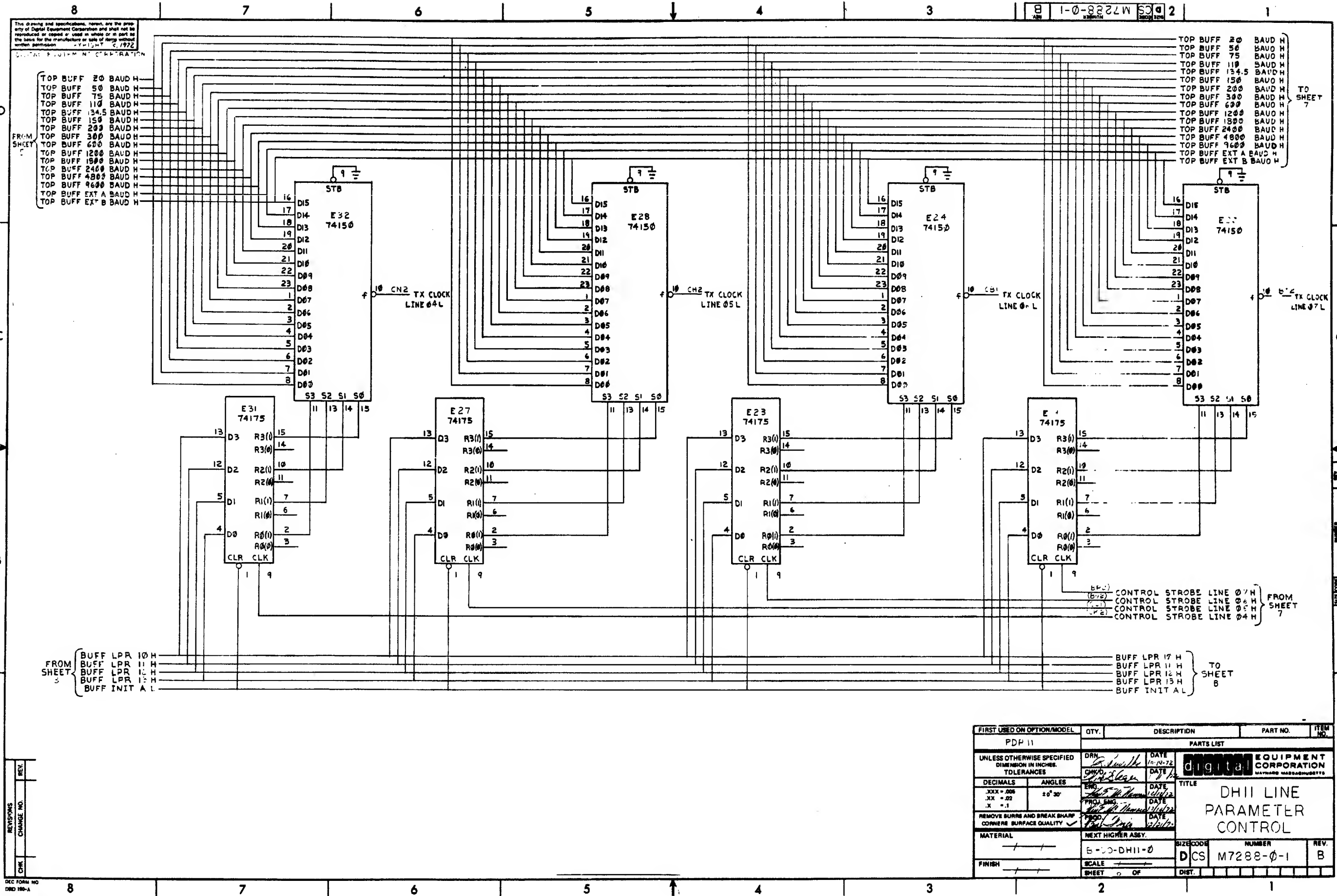
TO SHEET 7

BUFF LPR 15 H
BUFF LPR 14 H
BUFF LPR 06 H
BUFF LPR 07 H
BUFF LPR 08 H
BUFF LPR 09 H
BUFF INIT B L

FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP 11					
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES		PARTS LIST			
		EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS			
DECIMALS	ANGLES	DATE	TITLE DH11 LINE PARAMETER CONTROL		
.XXX - .005	± 0° 30'	10-13-72			
.XX - .02		DATE			
.X - .1		DATE			
		DATE			
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		ENG.	DATE		
		PROJ. ENG.	DATE		
		PROD.	DATE		
MATERIAL		NEXT HIGHER ASSY		REV.	
B-DD-DH11-0		SIZE CODE		NUMBER	
FINISH		SCALE		B	
		SHEET 5 OF		DISTRIBUTION	

REV	CHANGE NO.
1	1
2	2
3	3
4	4
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6	6
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99	99
100	100

DEC FORM NO
DND 101-8



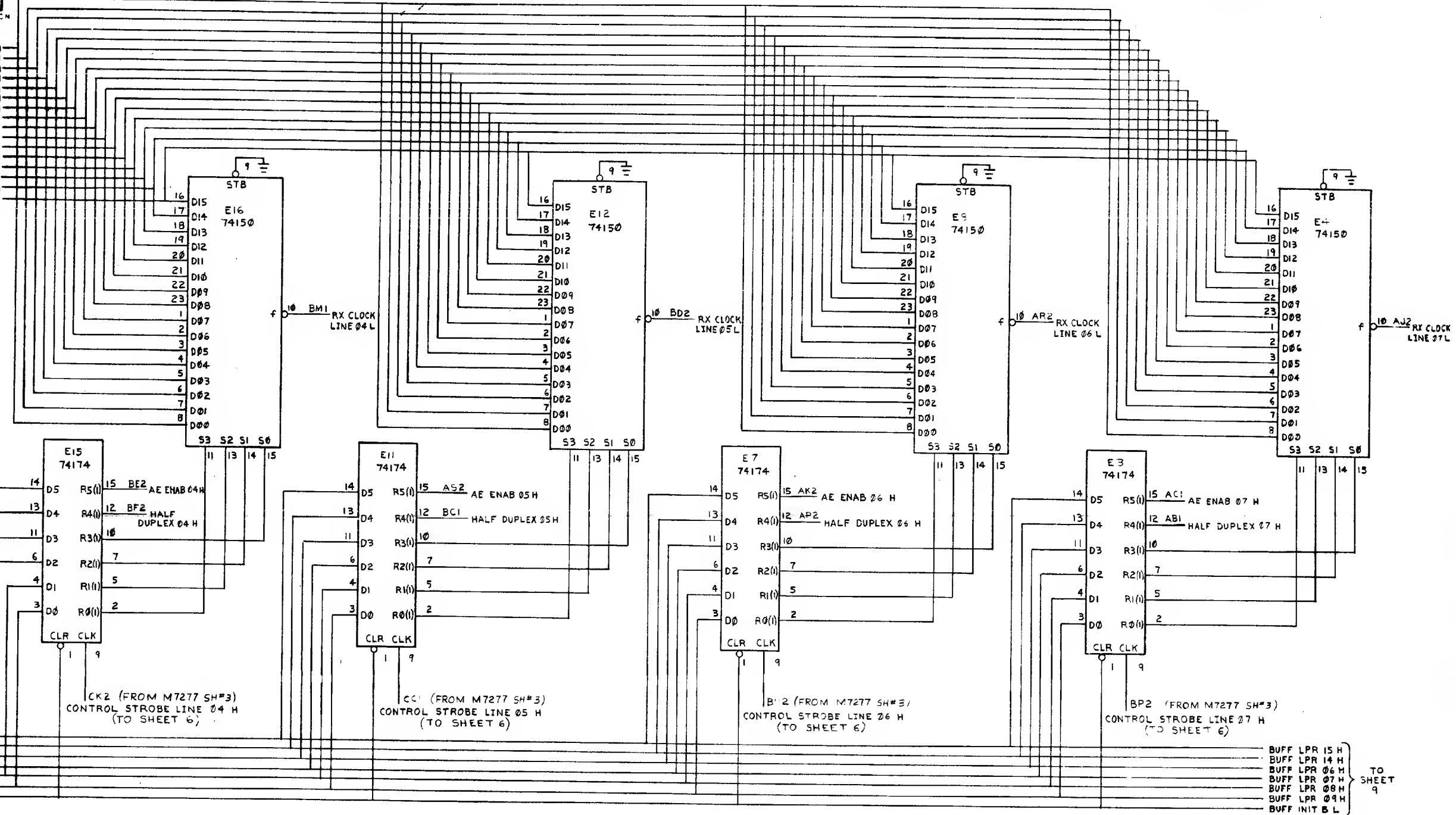
FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP 11					
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES		DRN	DATE	PARTS LIST	
DECIMALS		CHKD	DATE		
ANGLES		ENG	DATE	TITLE	
XXX = .005		PROJ. ENG.	DATE		
XX = .02		PROD.	DATE	NEXT HIGHER ASSY.	
X = .1		TEST	DATE		
REMOVE BURNS AND BREAK SHARP CORNERS SURFACE QUALITY				SIZE CODE	
MATERIAL					
FINISH				NUMBER	
				REV.	

REV.	CHANGE NO.	DATE
1		
2		
3		
4		
5		
6		
7		
8		

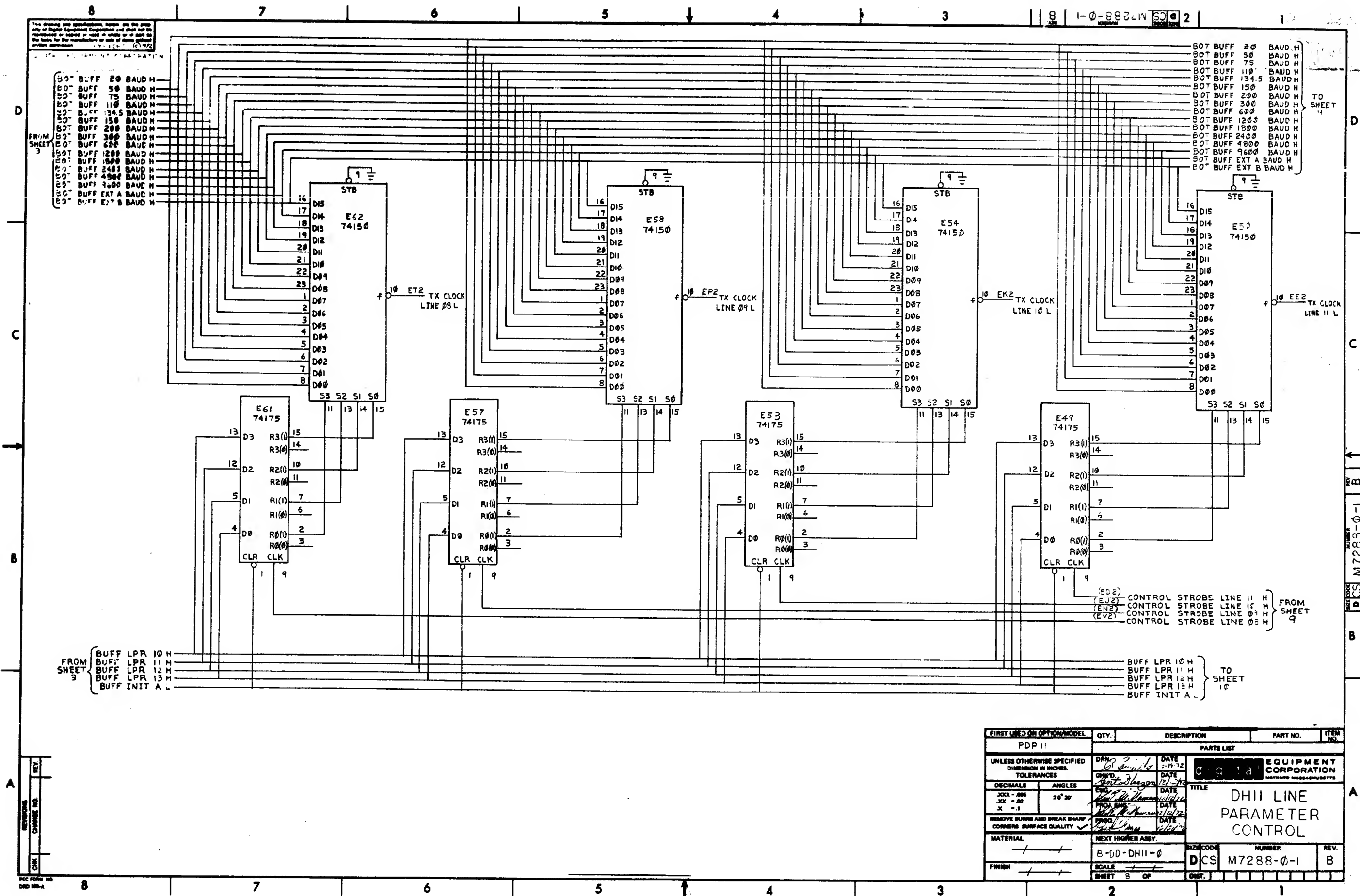
DEC FORM NO. 100-1

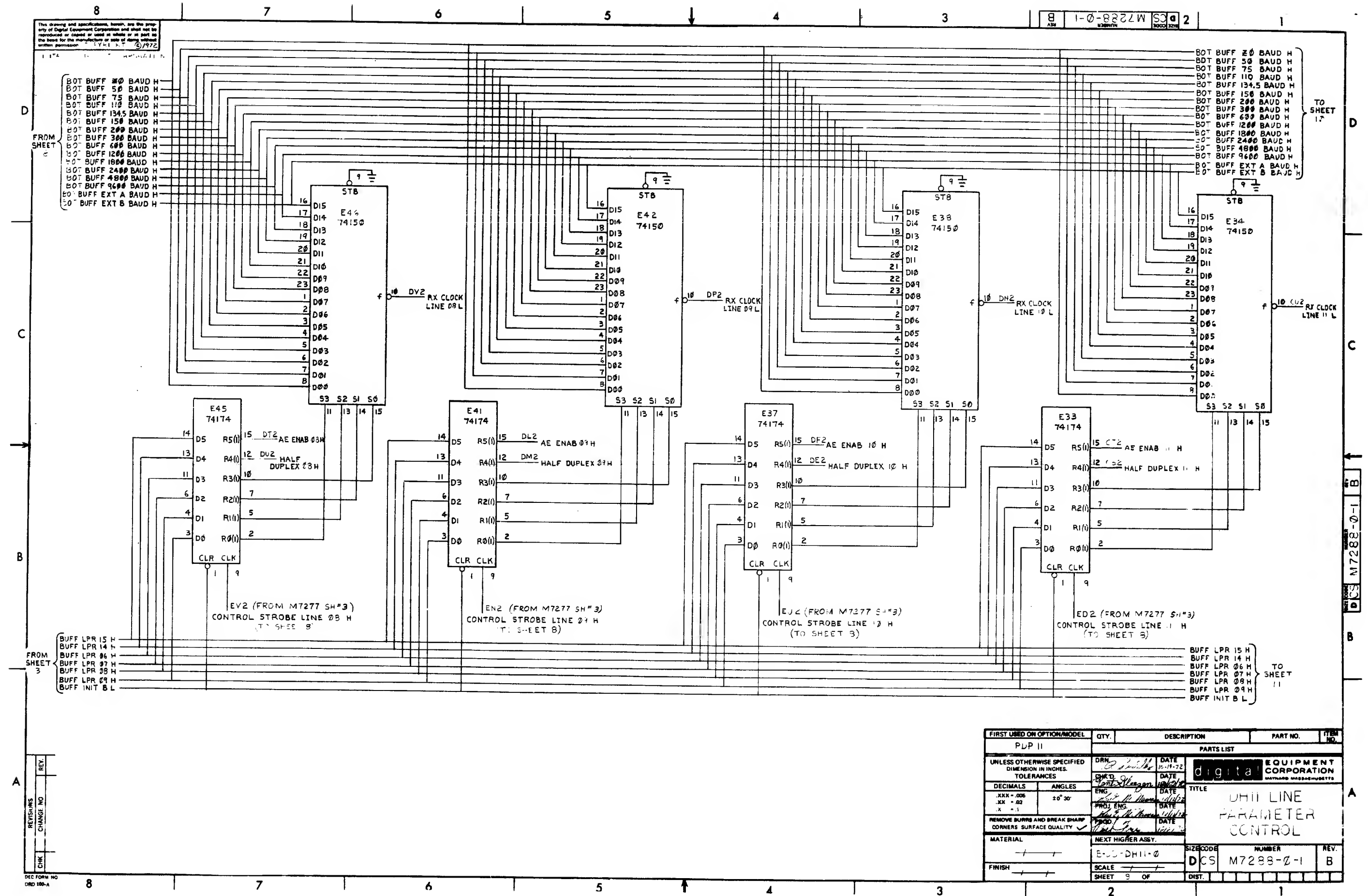
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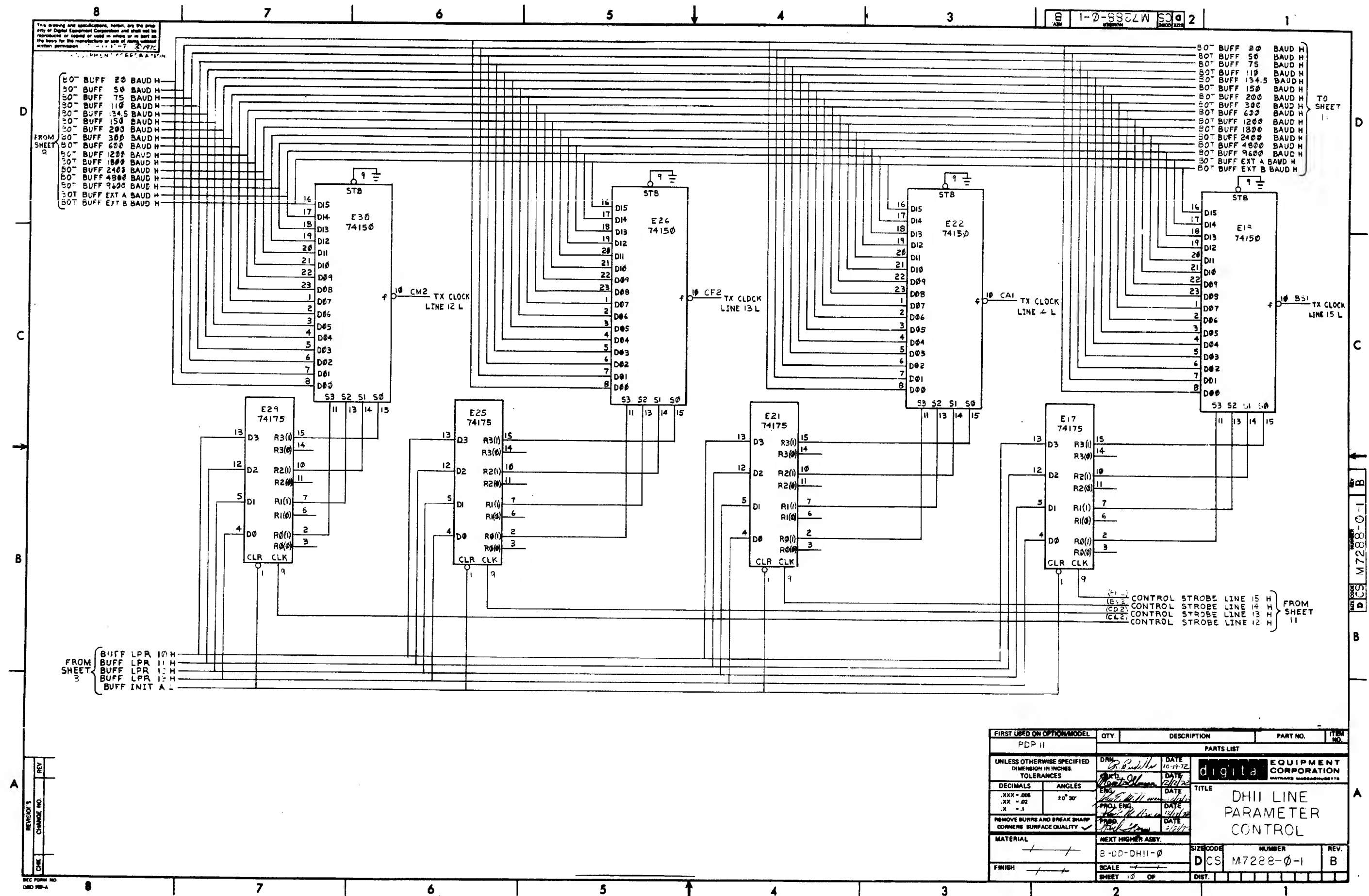
TOP BUFF 50 BAUD H
TOP BUFF 50 BAUD H
TOP BUFF 75 BAUD H
TOP BUFF 110 BAUD H
TOP BUFF 134.5 BAUD H
TOP BUFF 150 BAUD H
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TOP BUFF 300 BAUD H
TOP BUFF 600 BAUD H
TOP BUFF 1200 BAUD H
TOP BUFF 1800 BAUD H
TOP BUFF 2400 BAUD H
TOP BUFF 4800 BAUD H
TOP BUFF 9600 BAUD H
TOP BUFF EXT A BAUD H
TOP BUFF EXT B BAUD H

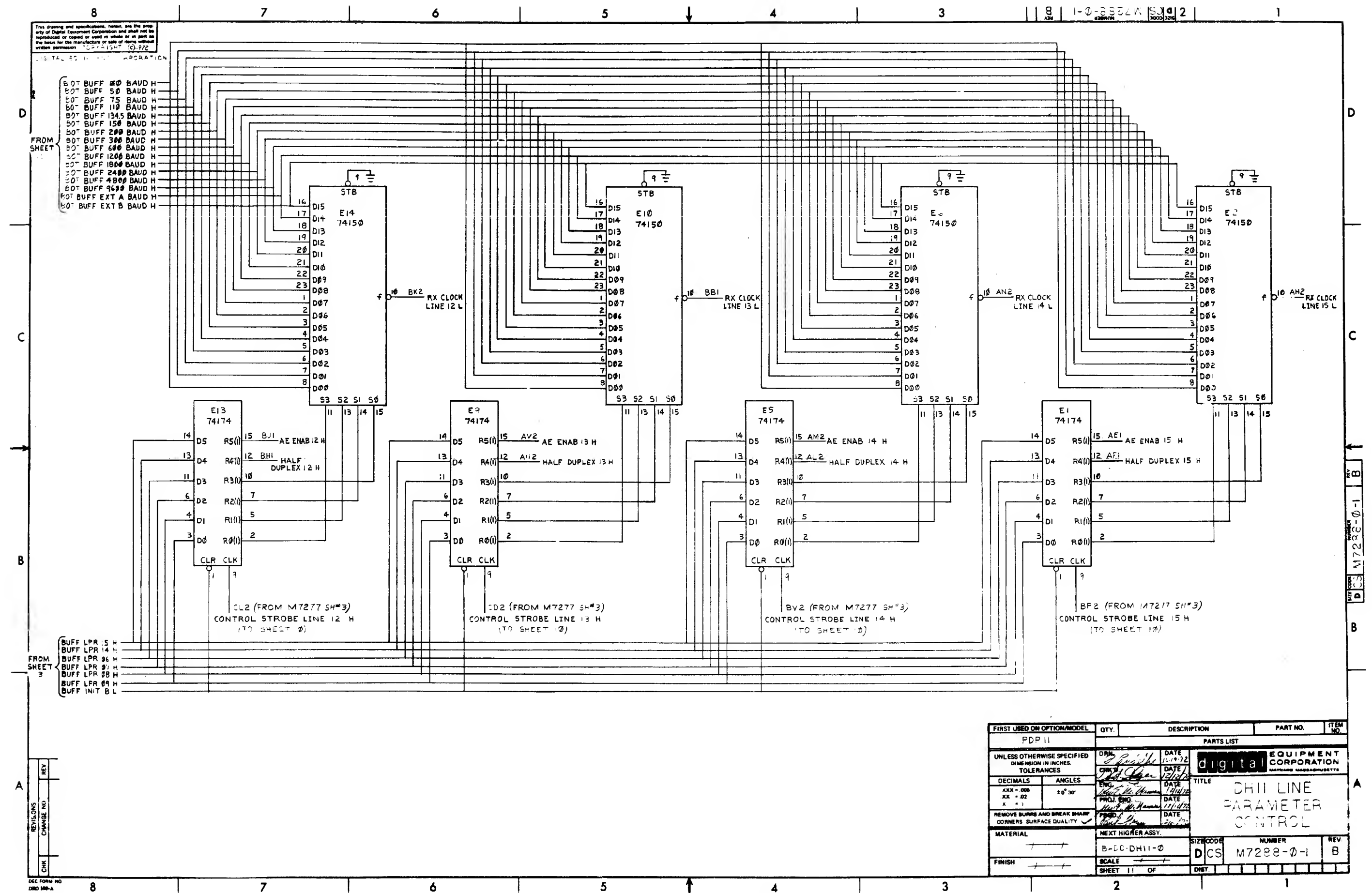


FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP 11					
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES		DRN. <i>[Signature]</i>	DATE 10-11-72	DIGITAL EQUIPMENT CORPORATION BATHURST, MASSACHUSETTS	
DECIMALS ANGLES		CHK'D. <i>[Signature]</i>	DATE 11-1-72		
XXX - 008 XX - 02 X - 1		ENG. <i>[Signature]</i>	DATE 11-1-72	TITLE DH11 LINE PARAMETER CONTROL	
REMOVE BURRS AND BREAK SHARP CORNERS. SURFACE QUALITY		PROF. ENG. <i>[Signature]</i>	DATE 11-1-72		
MATERIAL		PROD. <i>[Signature]</i>	DATE 11-1-72	SIZE CODE S-00-DH11-0	
FINISH		NEXT HIGHER ASSY.			
		SCALE		NUMBER D CS M7288-0-1	REV. B
		SHEET 7 OF			









PAGE REVISION CONTROL SHEET

[illegible]

digital EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

TITLE

SYSTEM CONTROL
& RECV SCAN

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DRA.	DATE
CMK'D.	DATE
ENG.	DATE
PROL. ENG.	DATE
PROD.	DATE
NEXT HIGHER ASSY.	
B-DD-DH11-Ø	
SCALE	

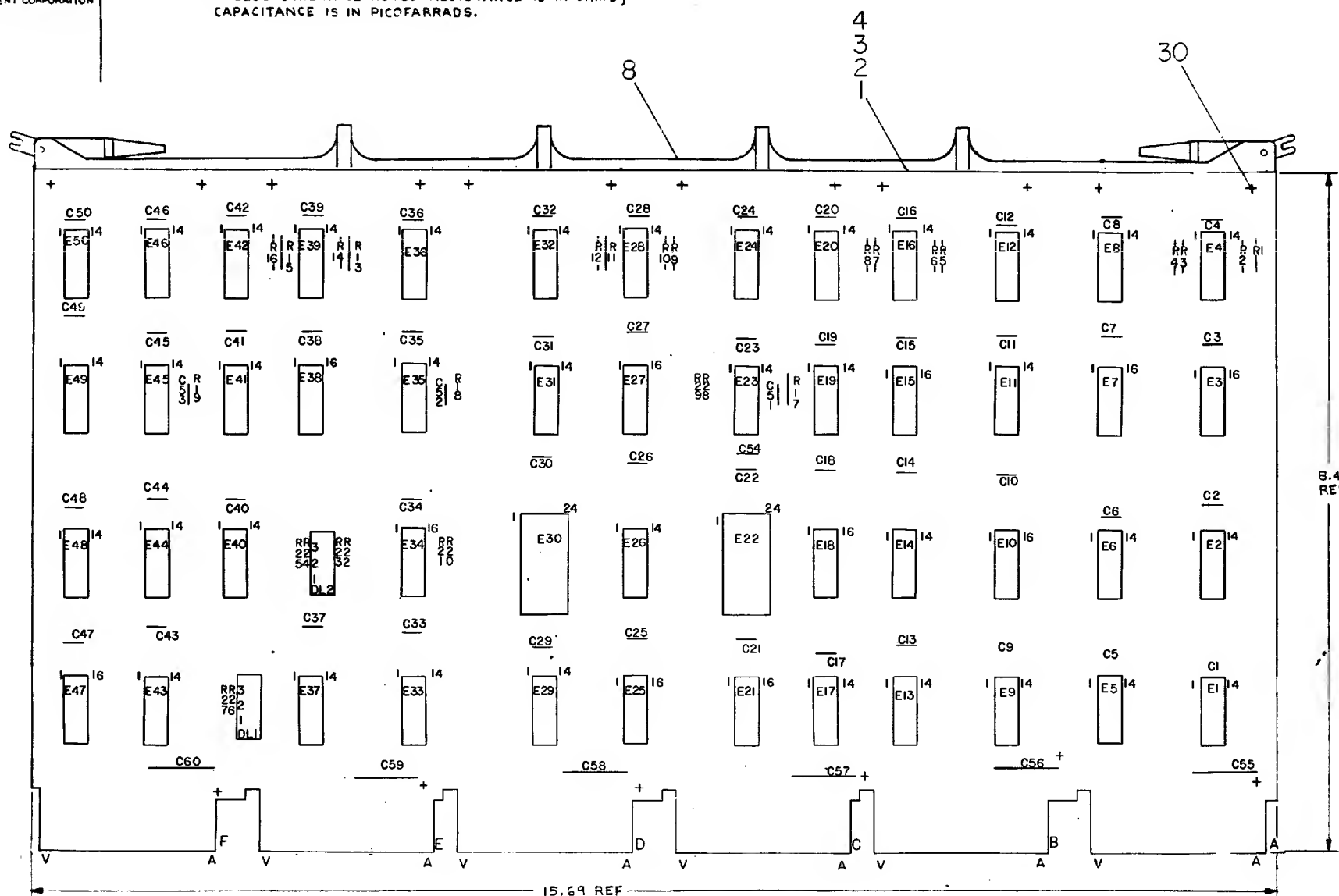
SIZE	CODE	NUMBER	REV.
B	CS	M7289-0-1	E
DIST.			

8 7 6 5 4 3 2 1

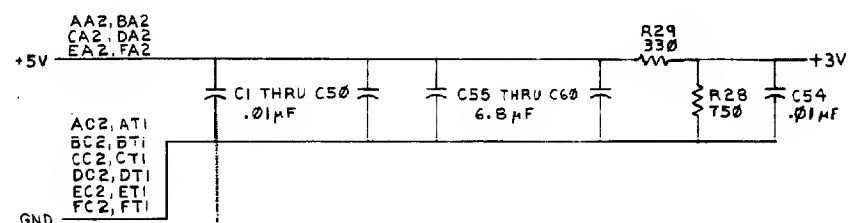
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NOTES:

1. UNLESS OTHERWISE NOTED RESISTANCE IS IN OHMS;
CAPACITANCE IS IN PICOFARRADS.



REF	X-Y COORDINATE HOLE LOCATION	K-CO-M7289-B-4	1
REF	ASSY/DRILLING HOLE LAYOUT	D-AM-M7289-B-5	2
REF	MODULE ECO HISTORY	B-MN-M7289-B-6	3
1	ETCHED CIRCUIT BOARD	5010200	4
8	C55 THRU C60	CAP 0.0 MFD 35V ± 20% STANT	5
51	C1 THRU C50, C54	CAP .01 MFD 100V ± 10% OISC	6
3	C51, C52, C53	CAP 27 PF 100V ± 5% D.M.	7
1	HANDLE MODULE	1210711-2	8
1	R28	RES 330 1/4W ± 5%	9
2	R25, R26	RES 300 1/4W ± 5%	10
2	R24, R27	RES 470 1/4W ± 5%	11
20	R1, THRU R10, R20 THRU R23	RES 1K 1/4W ± 5%	12
3	R17, R18, R19	RES 2.2K 1/4W ± 5%	13
1	R20	RES 700 1/4W ± 5%	14
2	DL1, DL2	DELAY LINE	15
6	E11, E10, E20, E37, E41, E50,	DEC I.C. 7474	16
12	E2, E4, E8, E14, E19, E20, E28,	DEC I.C. 7400	17
	E31, E32, E39, E42, E48		
2	E8, E43	DEC I.C. 7410	18
3	E1, E9, E40	DEC I.C. 7402	19
1	E44	DEC I.C. 74074	20
8	E5, E12, E24, E33, E36, E46	DEC I.C. 7404	21
1	E20	DEC I.C. 7417	22
1	E25	DEC I.C. 74103	23
2	E22, E30	DEC I.C. 74150	24
3	E13, E17, E40	DEC I.C. 7408	25
3	E23, E35, E45	DEC I.C. 74121	26
4	E7, E10, E18, E47	DEC I.C. 74175	27
1	E21	DEC I.C. 74174	28
5	E3, E15, E27, E34, E38	DEC I.C. 74157	29
12	EYELET (GS-4-7)	9000732	30



DEC 74193	3	16
DEC 74175	3	16
DEC 74174	5	16
DEC 74157	3	16
DEC 74150	2	24
IC TYPE	GND	+5V

GND AND 5V ARE USUALLY PIN 7 AND 14
RESPECTIVELY. EXCEPTIONS ARE STATED ABOVE

IC PIN LOCATIONS

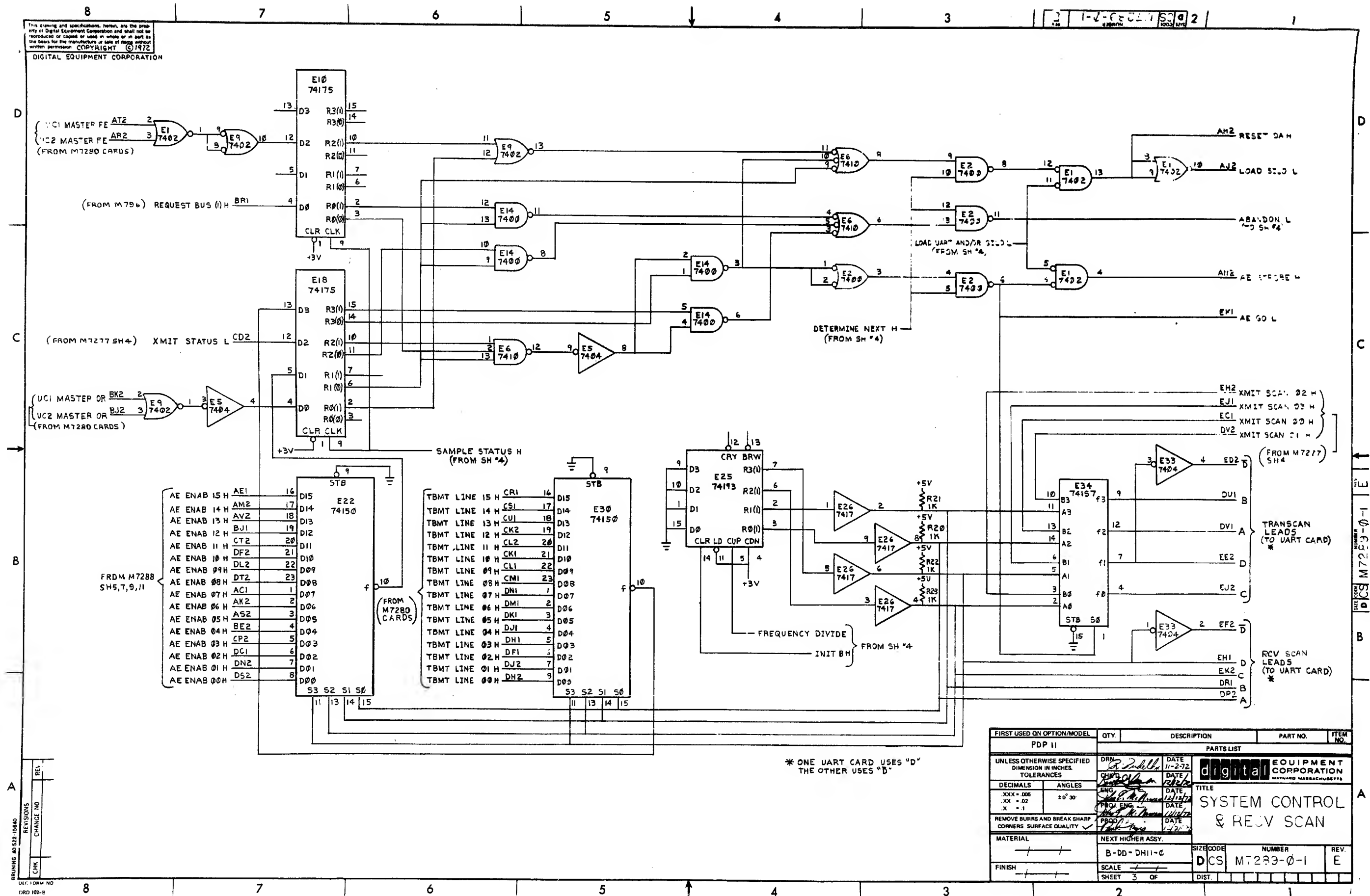
FIRST USED ON OPTION MODEL PDP 11		ETCH BOARD REV B		DATE 11-7-72		TITLE SYSTEM CONTROL & RECV SCAN	
DEC NO.		EIA NO.		DEC NO.		EIA NO.	
SEMICONDUCTOR CONVERSION CHART		SCALE NONE		SHEET 2 OF		REV. E	

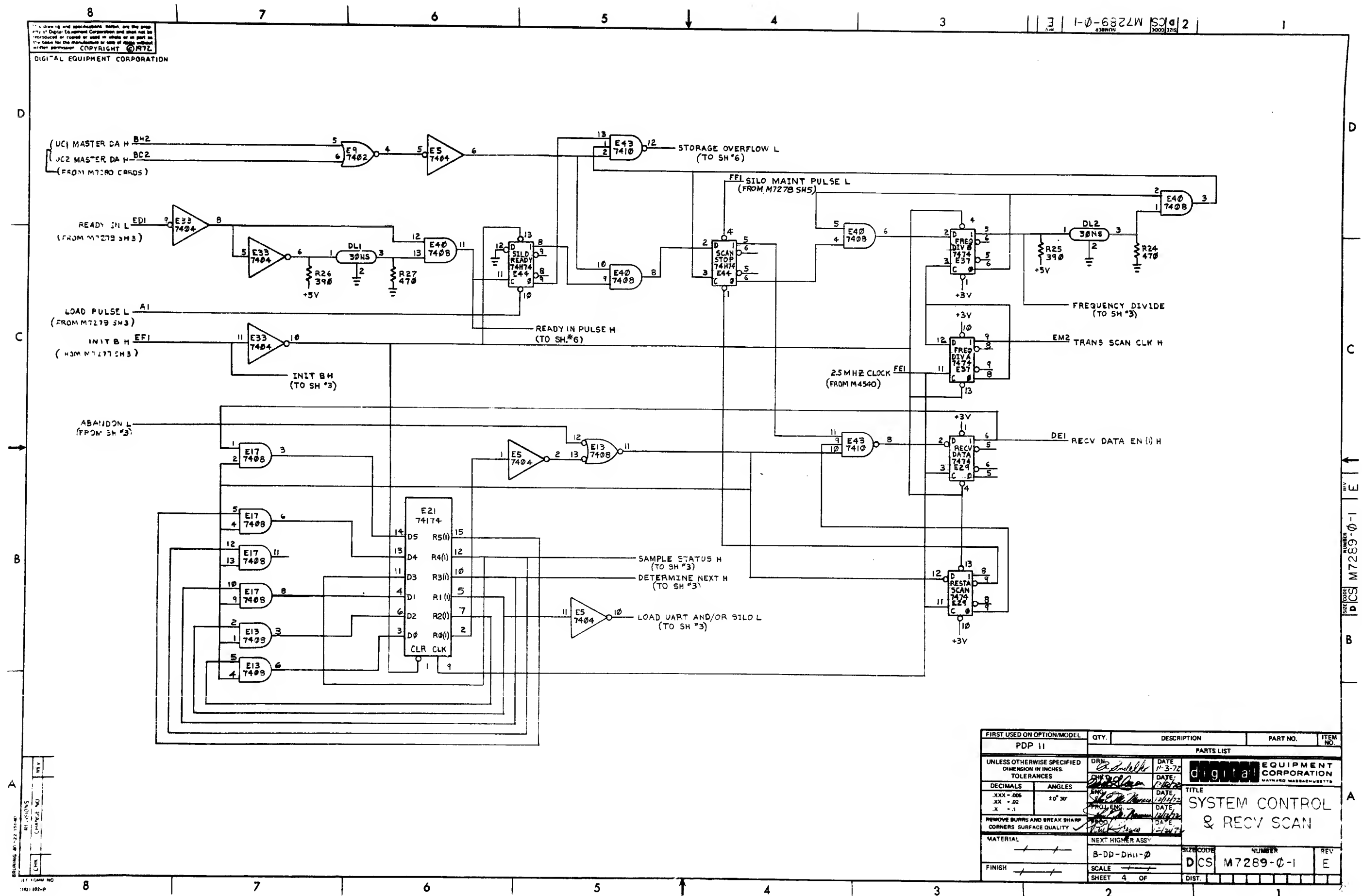
REVISIONS
J. MCNAMARA
11 May 77
M7289-00004
D
CHK
CHANGE NO.
REV

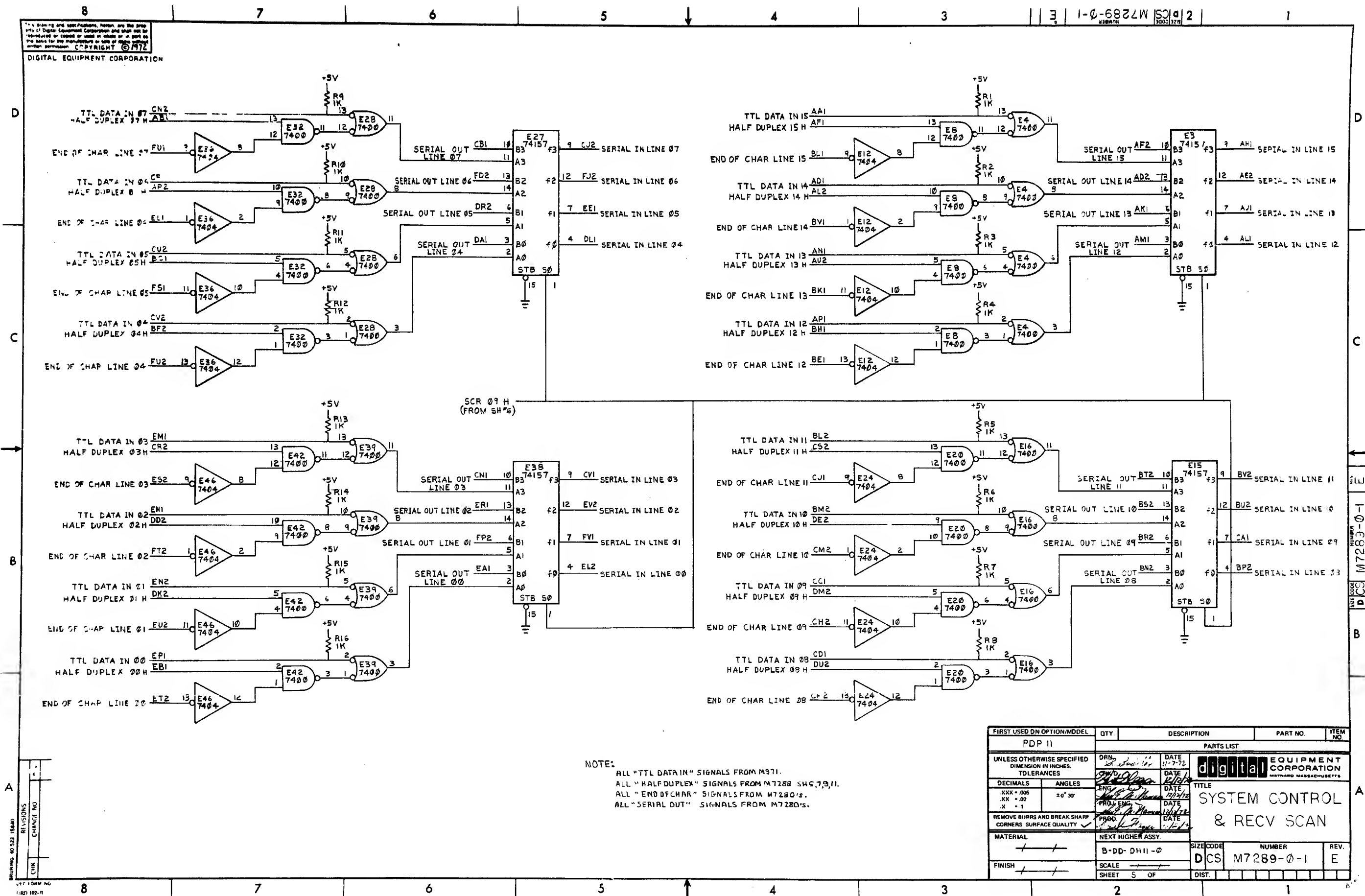
digital EQUIPMENT CORPORATION
NATICK, MASSACHUSETTS

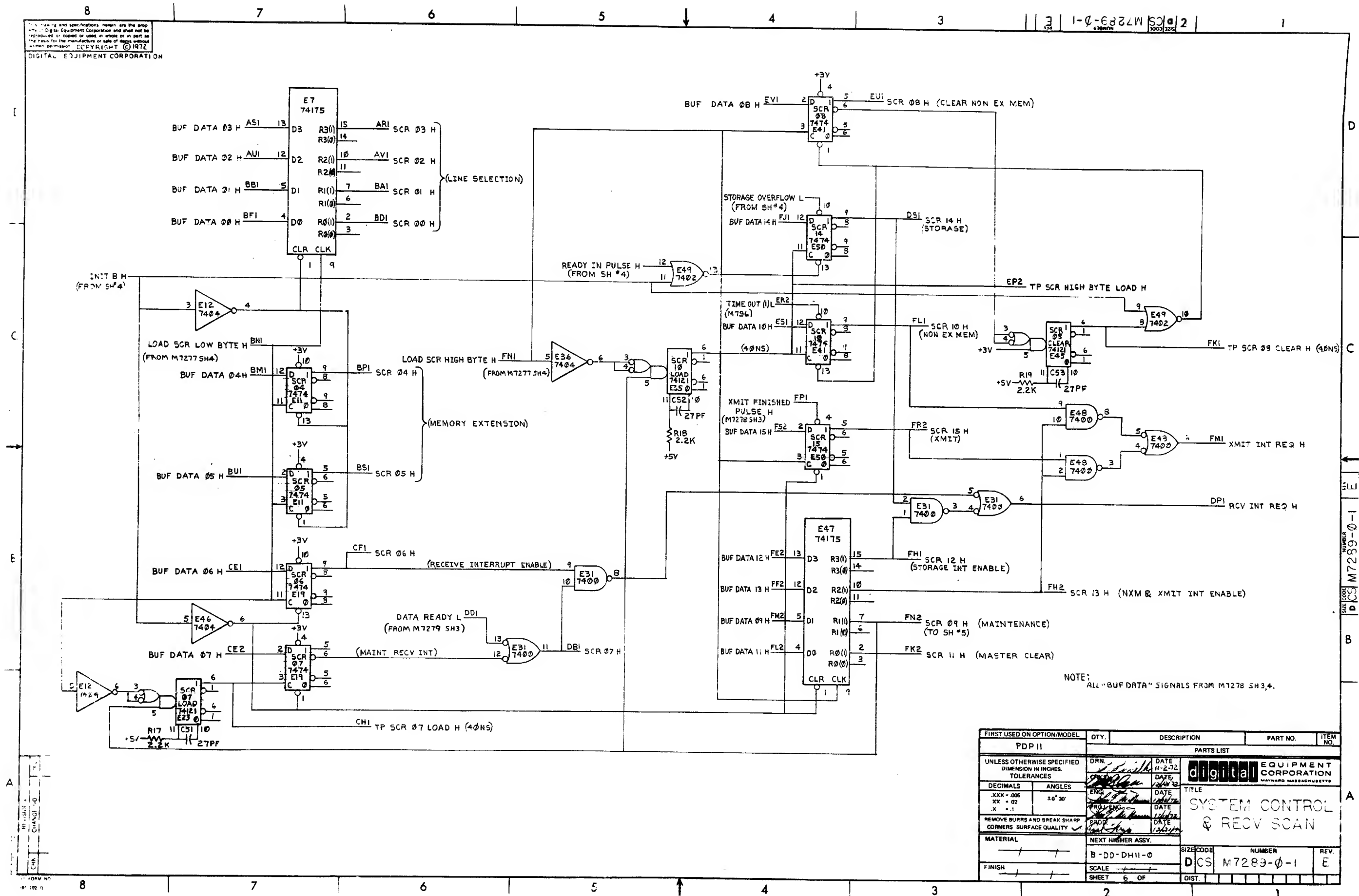
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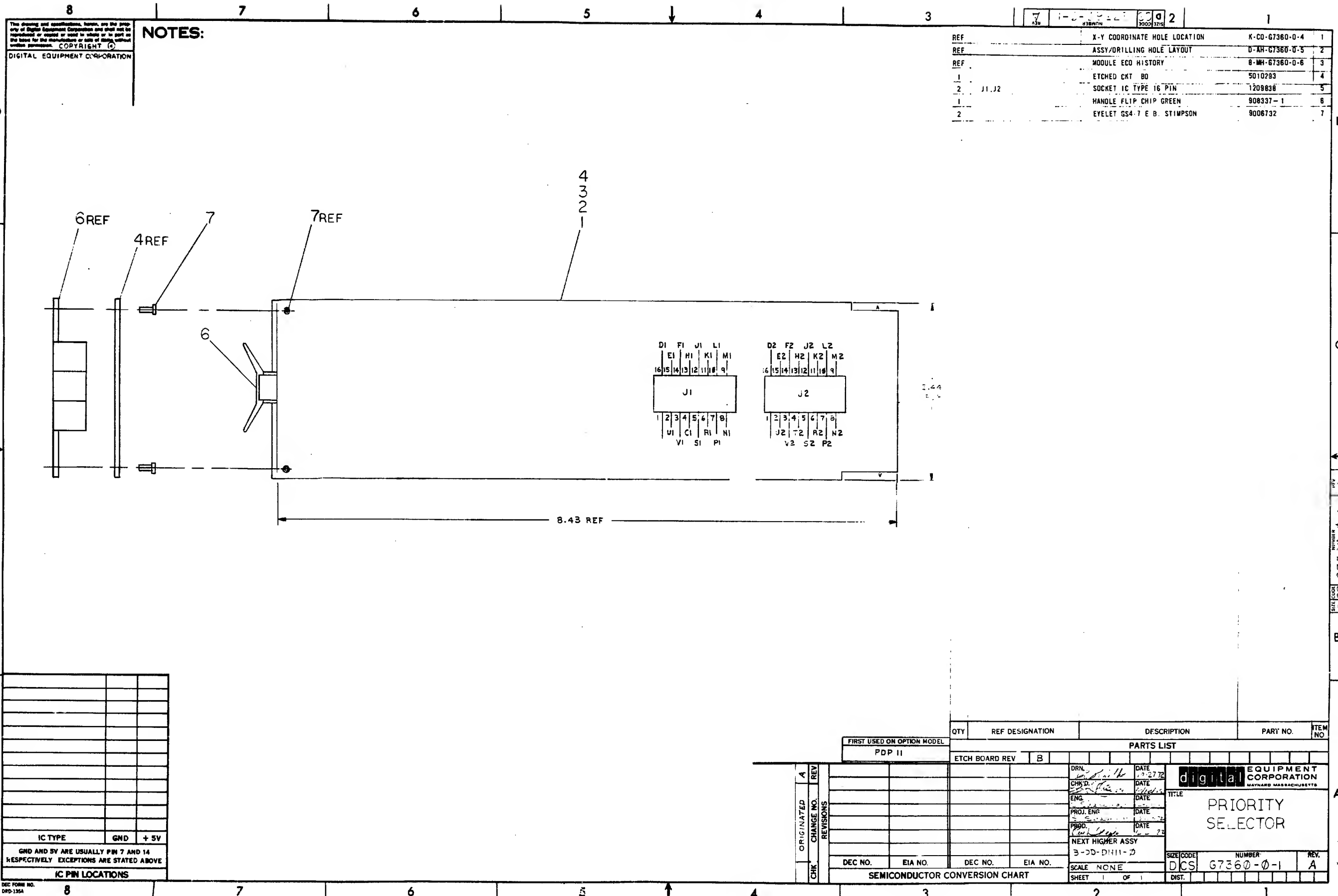
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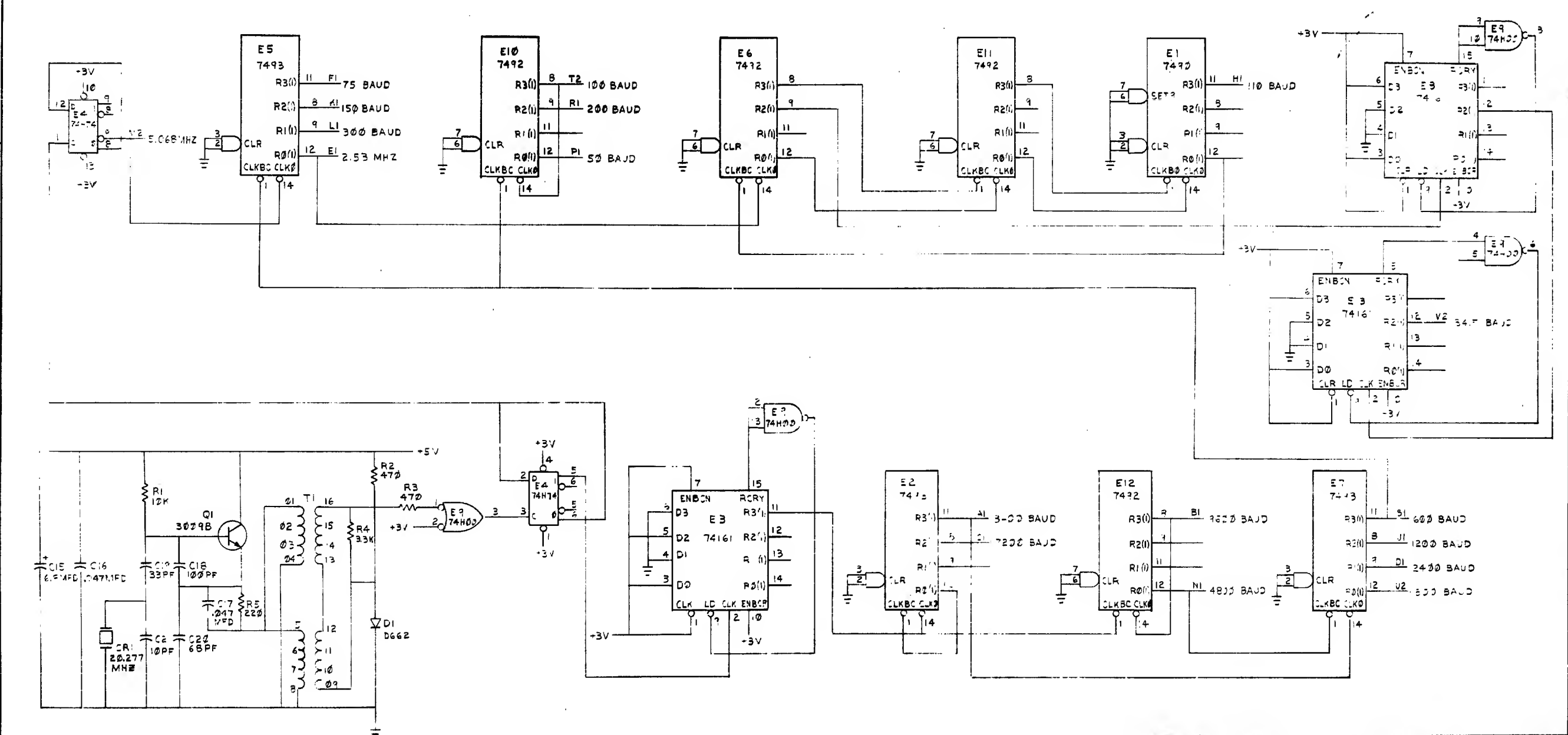








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REV	CHG	NO
1	1	1

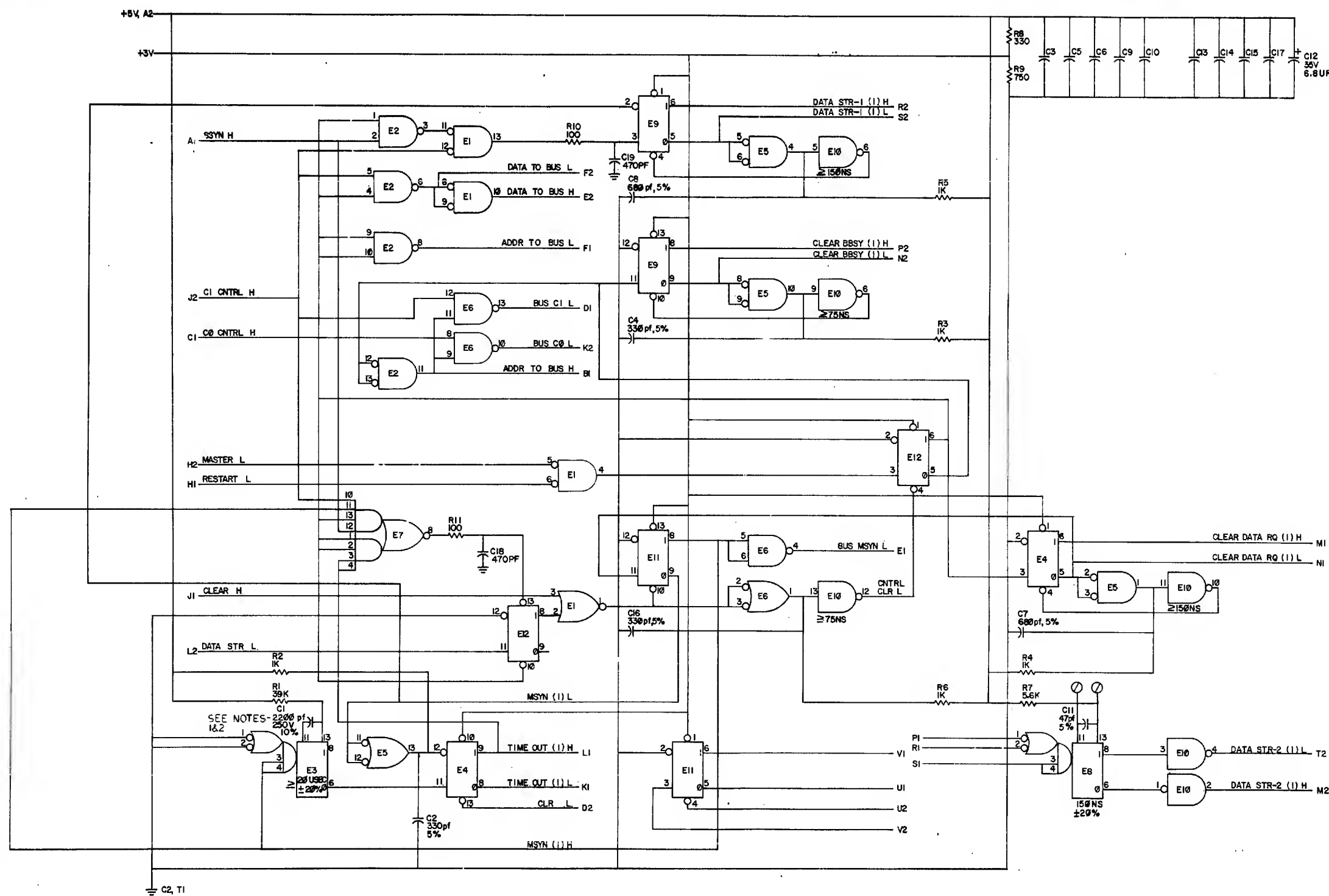
DEC 1081 NO
DAG 100-8

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP 11				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES				
DECIMALS	ANGLES	DATE	EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
XXX - .008	20° 30'	DATE		
XX - .03		DATE		
X - .1		DATE		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		DATE	TITLE DH11-DC11 CLOCK	
MATERIAL		DATE		
FINISH		DATE		
		DATE		
NEXT HIGHER ASSY.		DATE	SIZE CODE B-DD-DH11-0	
		DATE		
		DATE		
		DATE		
		DATE	NUMBER DCS M4540-0-1	
		DATE		
		DATE		
		DATE		
		DATE	REV. A	
		DATE		
		DATE		
		DATE		
		DATE	SHEET 2 OF 2	
		DATE		
		DATE		
		DATE		

[illegible]

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1-0 9621W 50 0 100.01/1/75



NOTE: 1. C1 IS CHANGED TO 5000PF $\pm 20\%$ (1001765) FOR A DELAY OF 37US MINIMUM WHEN USED WITH A DL10.
2. FOR M796-YA CHANGE C1 TO 68uf 35V (P/N4000067)

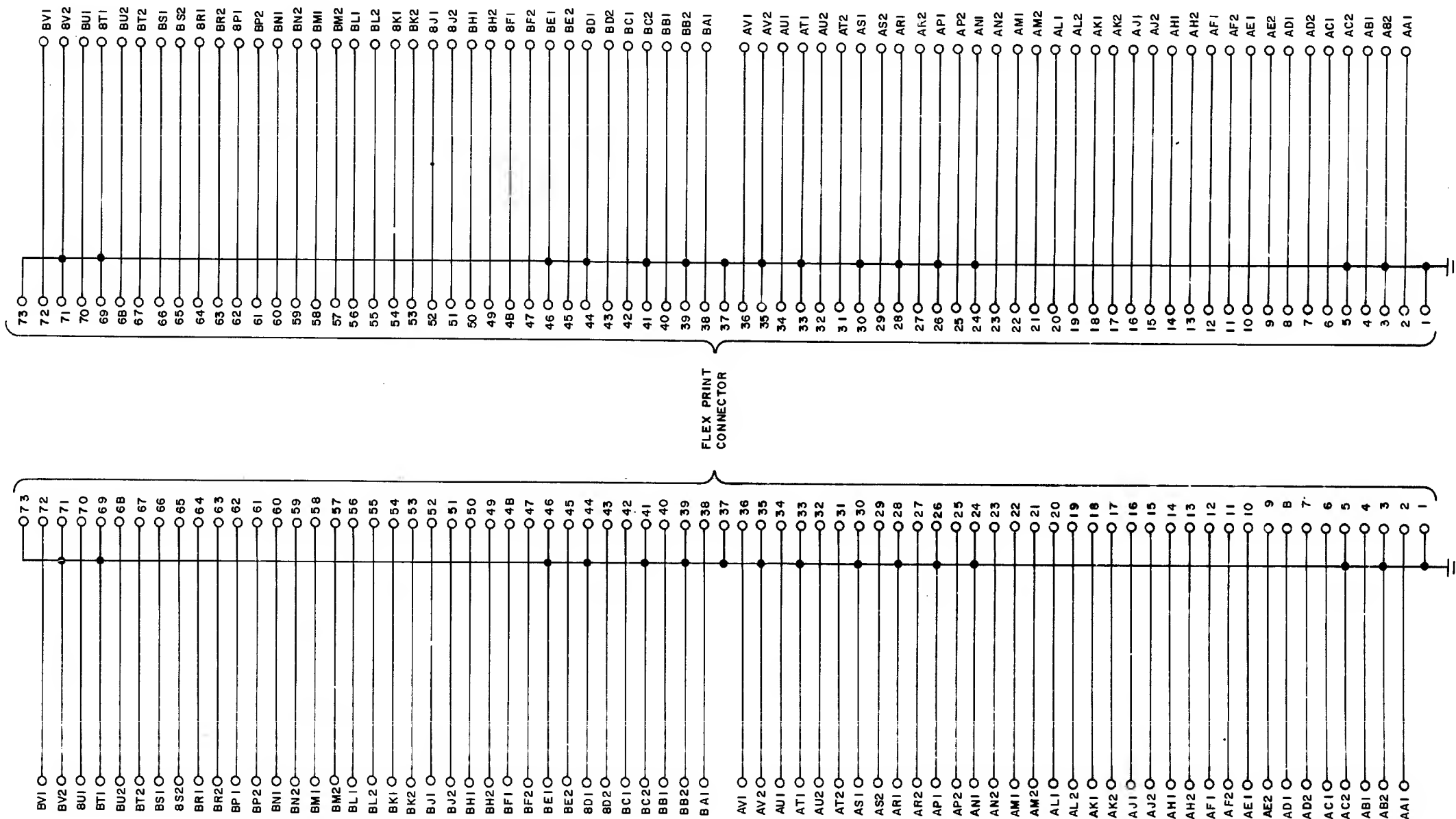
UNLESS OTHERWISE INDICATED:
RESISTORS ARE 1/4W, 5%
CAPACITORS ARE .01uf, 100V, 20%
E1 IS DEC7402
E2 IS DEC7400
E3, E8 ARE DEC9001
E4, E9, E11, E12 ARE DEC7474
E5 IS DEC7401
E6 IS DEC9001
E7 IS DEC7405
E10 IS DE7404
⊗ = SPLIT LUGS

REVISIONS	DATE	BY	CHKD	APPD
1	10/29/70	W. J. K.		
2	11/10/70	W. J. K.		
3	11/10/70	W. J. K.		
4	11/10/70	W. J. K.		
5	11/10/70	W. J. K.		
6	11/10/70	W. J. K.		
7	11/10/70	W. J. K.		
8	11/10/70	W. J. K.		
9	11/10/70	W. J. K.		
10	11/10/70	W. J. K.		

TRANSISTOR & DIODE CONVERSION CHART			
DEC	EMA	DEC	EMA

TITLE		UNIBUS MASTER CONTROL M796	
EQUIPMENT CORPORATION		D C3 M796-0-1	
PRINTED CIRCUIT REV.		C	

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REVISIONS	
CHK	CHG NO. REV
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2	00002 B
3	00004 C

DEC FORM NO. DRG 102

DRN	DATE
CHK'D	DATE
ENG	DATE
PROP.	DATE

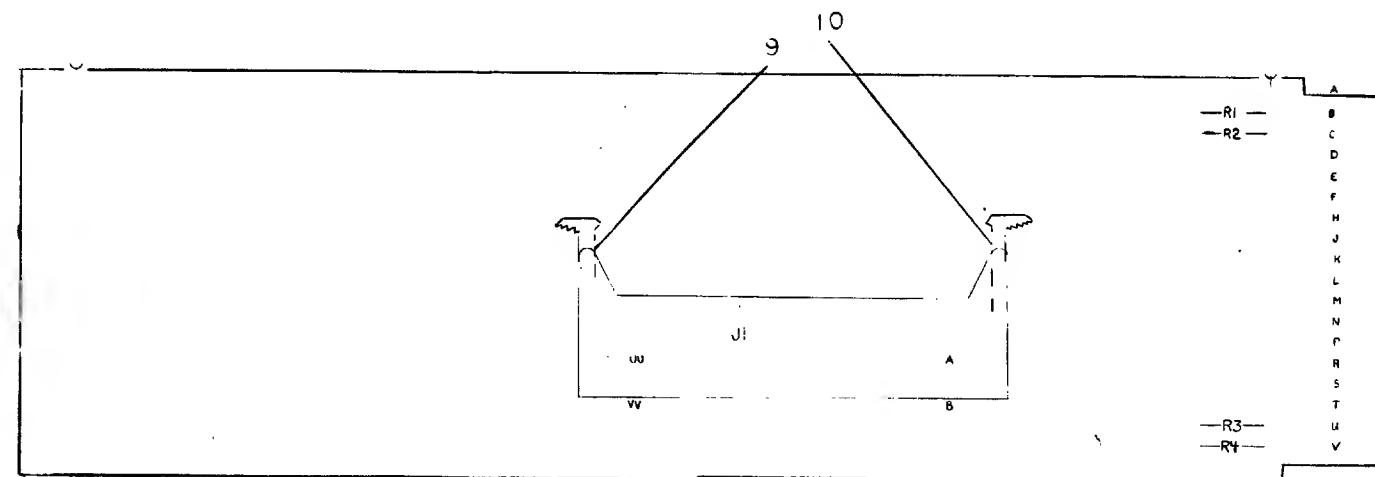
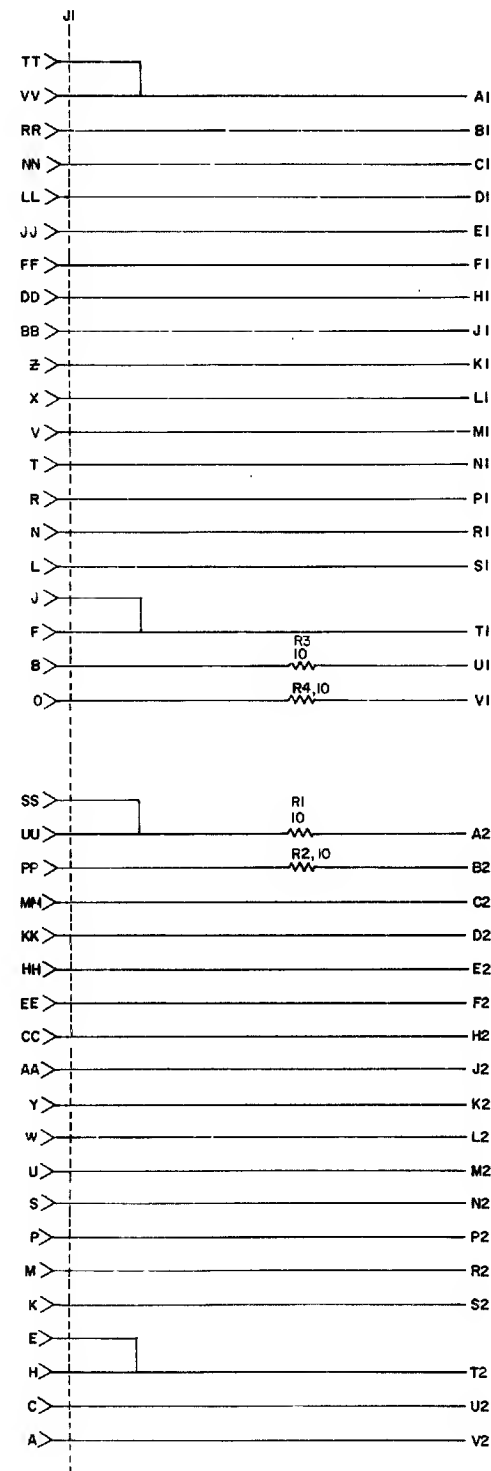
TRANSISTOR & DIODE CONVERSION CHART			
DEC		EIA	

EQUIPMENT CORPORATION	
MAYNARD, MASSACHUSETTS	

TITLE			
INTERNAL BUS CONNECTOR			
M920			
SIZE	CODE	NUMBER	REV.
C	CS	M920-0-1	C
PRINTED CIRCUIT REV.			
B			

324,434,435 PINK

1971



1		LEFT LATCH	1209941-03	10
1		RIGHT LATCH	1209941-04	9
1		HANDLE, FLIP CHIP - MAGENTA	9008337-06	8
2		EYELET	9006732	7
4	R1, 2, 3, 4.	RES. 10 Ω 10%	1300170	6
1	J1	BERG HEADER	1209941	5
1		ETCHED CIRCUIT BOARD	5009754	4
		MODULE BCG HISTORY	B-MH-4971-0-6	3
		ASSY/DRILLING HOLE LAYOUT	D-AH-4971-0-5	2
		X-Y COORDINATE HOLE LOCATION	K-GO-4971-0-4	1
QTY.	REF. OR SIGNATION	DESCRIPTION	DEC PART NO.	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466
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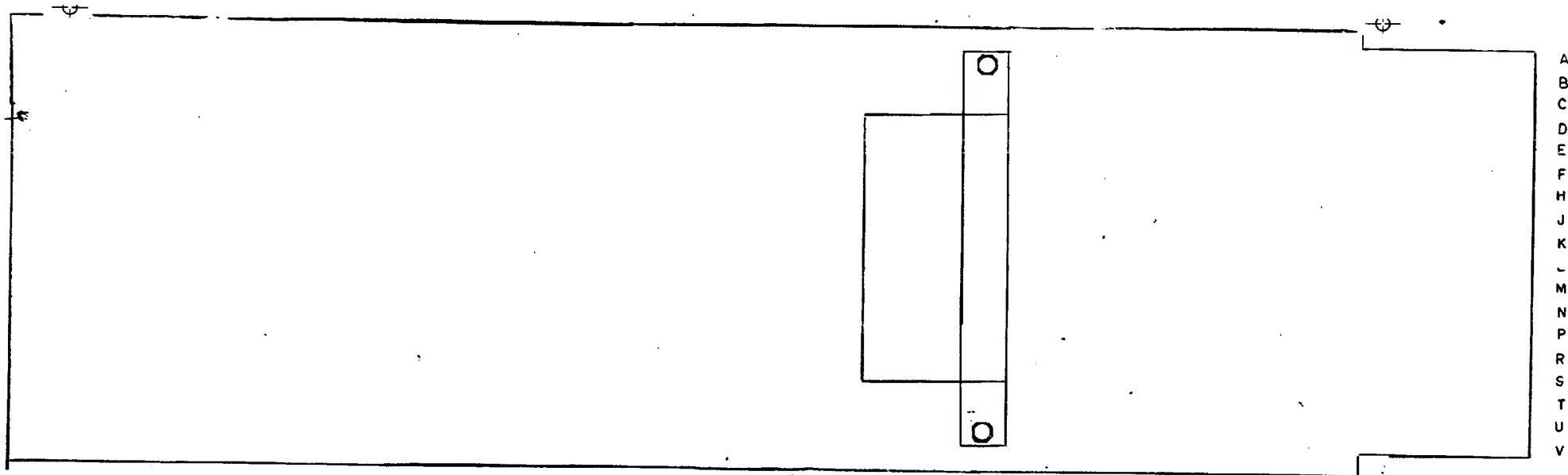
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**EQUIPMENT
CORPORATION**
MAYFLOW, MASSACHUSETTS

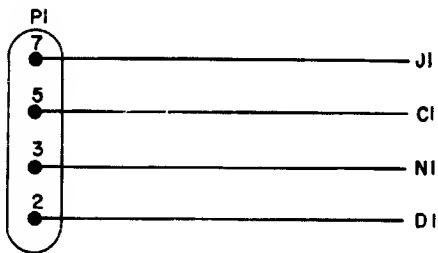
TITLE	CABLE INTERFACE BOARD #2
-------	--------------------------

SIZE	CODE	NUMBER
D	CS	M971-0-1
PRINTED CIRCUIT REV.		

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A
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C
D
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H
J
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U
V



2	RIVETS	9007266	13
4	FEED-THRU EYELET	9006693	12
2	WASHER	9006693	11
2	WASHER	9006693	10
2	WASHER	9006693	9
1	handle SLIP CHIP - MAGENTA	9008337-06	8
2	eyelet	9006732	7
4	PINS	1209456-01	6
1	PIN HOUSING	1209340-0-0	5
1	ETCHED CIRCUIT BOARD	5009587	4
	MODULE ECO HISTORY	B-AH-1973-0-6	3
	ASSY/DRILLING HOLE LAYOUT	B-AH-M973-0-5	2
	X-Y COORDINATE HOLE LOCATION	K-CC-M973-0-4	1
QTY.	REF DESIGNATION	DESCRIPTION	DEC PART NO.
		PARTS LIST	

REVISIONS	CHK	CHG	NO.	REV
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5

DRN
B. J. Hilde
CHK'D
N. J. Hilde
ENG
S. Shannan
PROD.

DATE
5/11/71
DATE
5/12/71
DATE
5/21/71
DATE

TRANSISTOR & DIODE CONVERSION CHART

DEC	EIA	DEC	EIA

EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
TTY CABLE CONNECTOR

SIZE
C

CODE
CS

NUMBER
M973-0-1

PRINTED CIRCUIT REV.

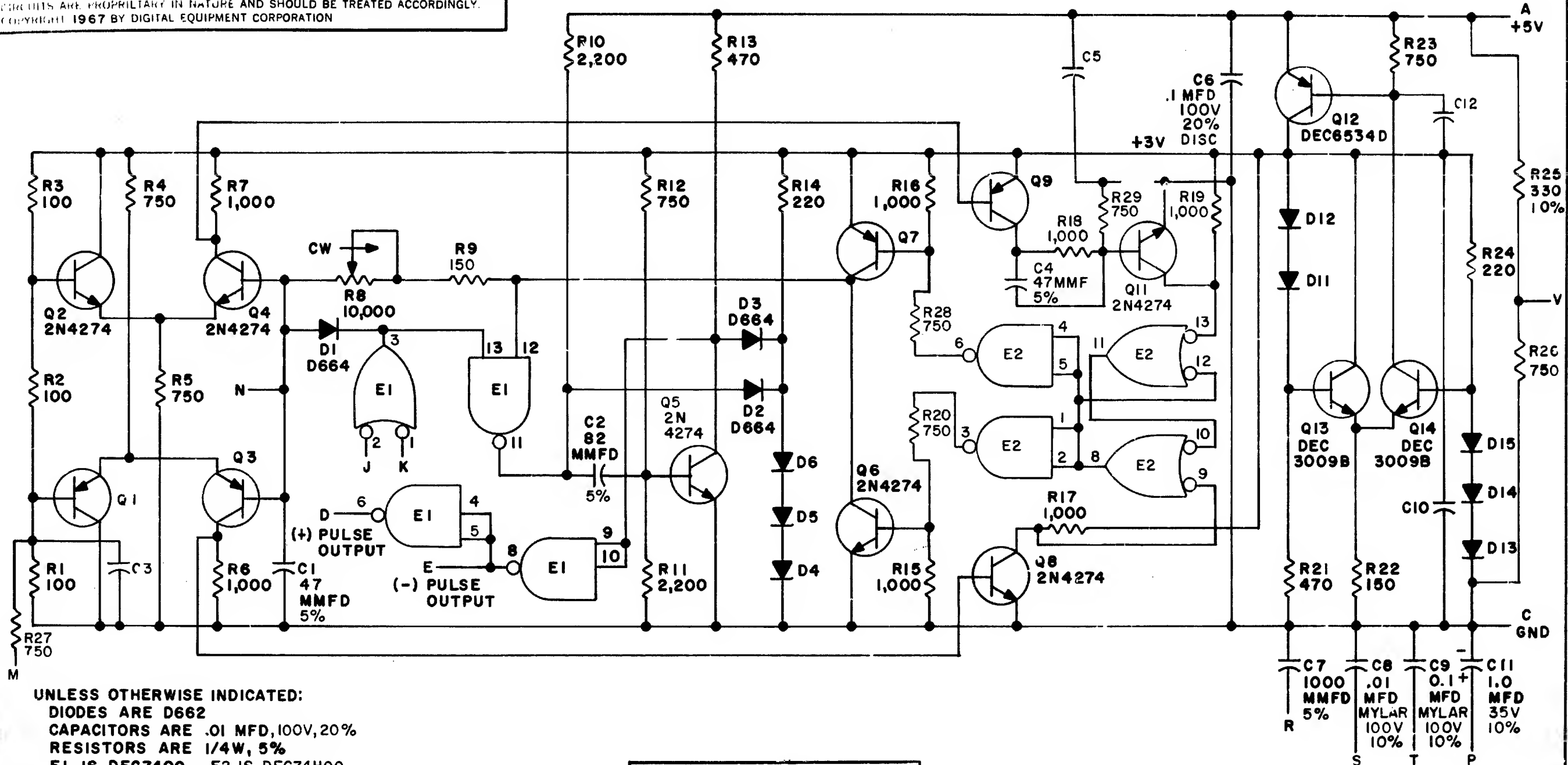
REV
B

REV
F

REV
F

REV
F

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UNLESS OTHERWISE INDICATED:
 DIODES ARE D662
 CAPACITORS ARE .01 MFD, 100V, 20%
 RESISTORS ARE 1/4W, 5%
 E1 IS DEC7400, E2 IS DEC74H00
 PIN 7 ON IC = GND
 PIN 14 ON IC = +5V
 TRANSISTORS ARE DEC4258
 R8 IS A HELITRIM POT 10% -78PR

PARTS LIST A-PL-M401-0-0

REV	CHG	NO.	REV.	A	B	C	D	E	F	G	H	I	J	K	L	M
6769	6844	00001	00002	00003	00004	00005	00006	00007	00008							

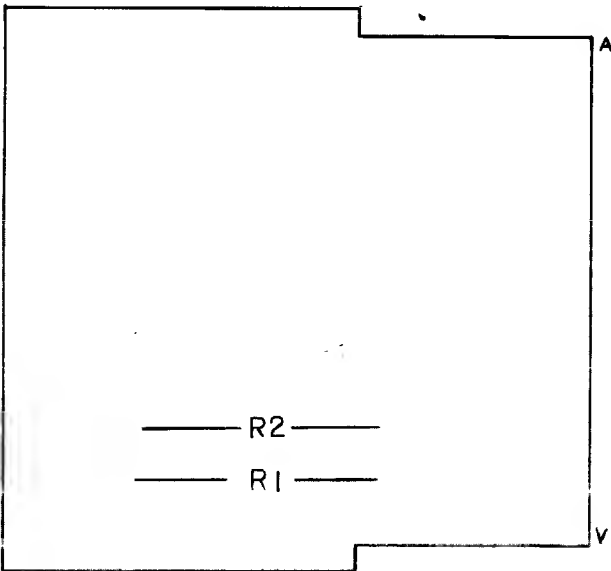
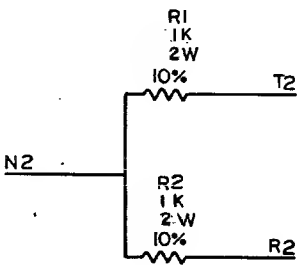
DRN.	DATE
7m. Haller	9-11-67
CHK'D	DATE
	11/13/67
ENG.	DATE
L.P. White	9/13/67
PROD.	DATE

TRANSISTOR & DIODE CONVERSION CHART			
DEC	EIA	DEC	EIA
DEC3009B	2N3009	D662	1N645
DEC4258	2N4258	D664	1N3606
2N4274	SAME		
DEC6534D	MPS6534		

digital
 EQUIPMENT CORPORATION
 MAYNARD, MASSACHUSETTS

TITLE				VARIABLE CLOCK M401			
SIZE	CODE	NUMBER	REV				
B	CS	M401-0-1	M				
PRINTED CIRCUIT REV.							

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2	R1,R2	RES. 1K, 2W, 10%	1300369	5
1		ETCHED CIRCUIT BOARD	5009588	4
		MODULE ECO HISTORY	B-MB-W404-0-6	3
		ASSY/DRILLING HOLE LAYOUT	D-AM-W404-0-5	2
		X-Y COORDINATE HOLE LOCATION	K-CO-W404-0-4	1
QTY.	REF DESIGNATION	DESCRIPTION	DEC PART NO.	ITEM NO.
		PARTS LIST		

REVISIONS
CHK CHG NO. REV.
00001 B
S. SHAMMAS

DEC FORM NO.

DRN	DATE
5/1/71	5/1/71
CHK'D	DATE
5/1/71	5/1/71
ENG.	DATE
5/1/71	5/1/71
PROD.	DATE
5/1/71	5/1/71

TRANSISTOR & DIODE CONVERSION CHART			
DEC	EIA	DEC	EIA

EQUIPMENT CORPORATION
MILFORD, MASSACHUSETTS

TITLE			
DTR JUMPER			
SIZE	CODE	NUMBER	REV
C	CS	W404-0-1	B
PRINTED CIRCUIT REV.			
C			

DISY. 324,434,435 2

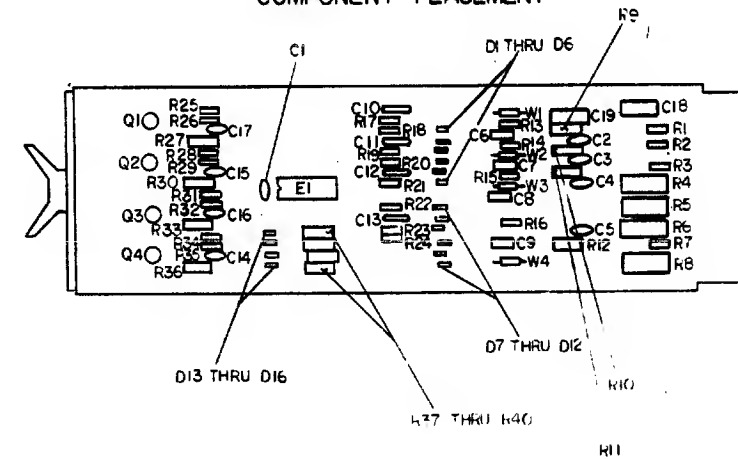
SIZE CODE C CS
NUMBER W404-0-1
REV B

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PARTS REFERENCE

ITEM NO	DRAWING REFERENCE	DESCRIPTION	PART NUMBER	QUANTITY
1	E1	DEC 384	IC 1509486	1
2	C1 THRU C5	.01 UF 100V 20%	CAP 1001610	5
3	C6 THRU C9	.47 UF 35V 10%	CAP 1005965	4
4	C10 THRU C13	10 PF 100V 5%	CAP 1000006	4
5	C14 THRU C17	.001 UF 250V 20%	CAP 1000043	4
6	C18, C19	6.8 UF 35V 20%	CAP 1000057	2
7	R1, R2, R3, R7	750 1/4W 5%	RES 1301401	4
8	R4, R5, R6, R8	750 1W 5%	RES 1302385	4
9	R9 THRU R12	560 1/2W 5%	RES 1300338	4
10	R13 THRU R16	82 1/4W 5%	RES 1301477	4
11	R17, R20, R21, R23	10K 1/4W 5%	RES 1300479	4
12	R18, R19, R22, R24	3.3K 1/4W 5%	RES 1300439	4
13	R25, R28, R31, R34	1.5K 1/4W 5%	RES 1300391	4
14	R26, R29, R32, R35	470 1/2W 5%	RES 1300316	4
15	R27, R30, R33, R36, R37 THRU R40	1.5K 1/2W 5%	RES 1300249	8
16	D1 THRU D16	DE63 DIODE	1100114	16
17	Q1 THRU Q4	DEC 6534D TRANSISTOR	1503409-00	4
REF		20 MA TO TTL CONVERTER	A-PL-M596-0-0	1

COMPONENT PLACEMENT

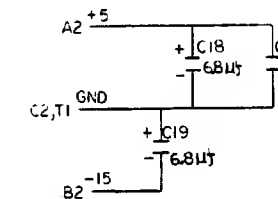


PIN NOMENCLATURE

MODULE PROCESSOR

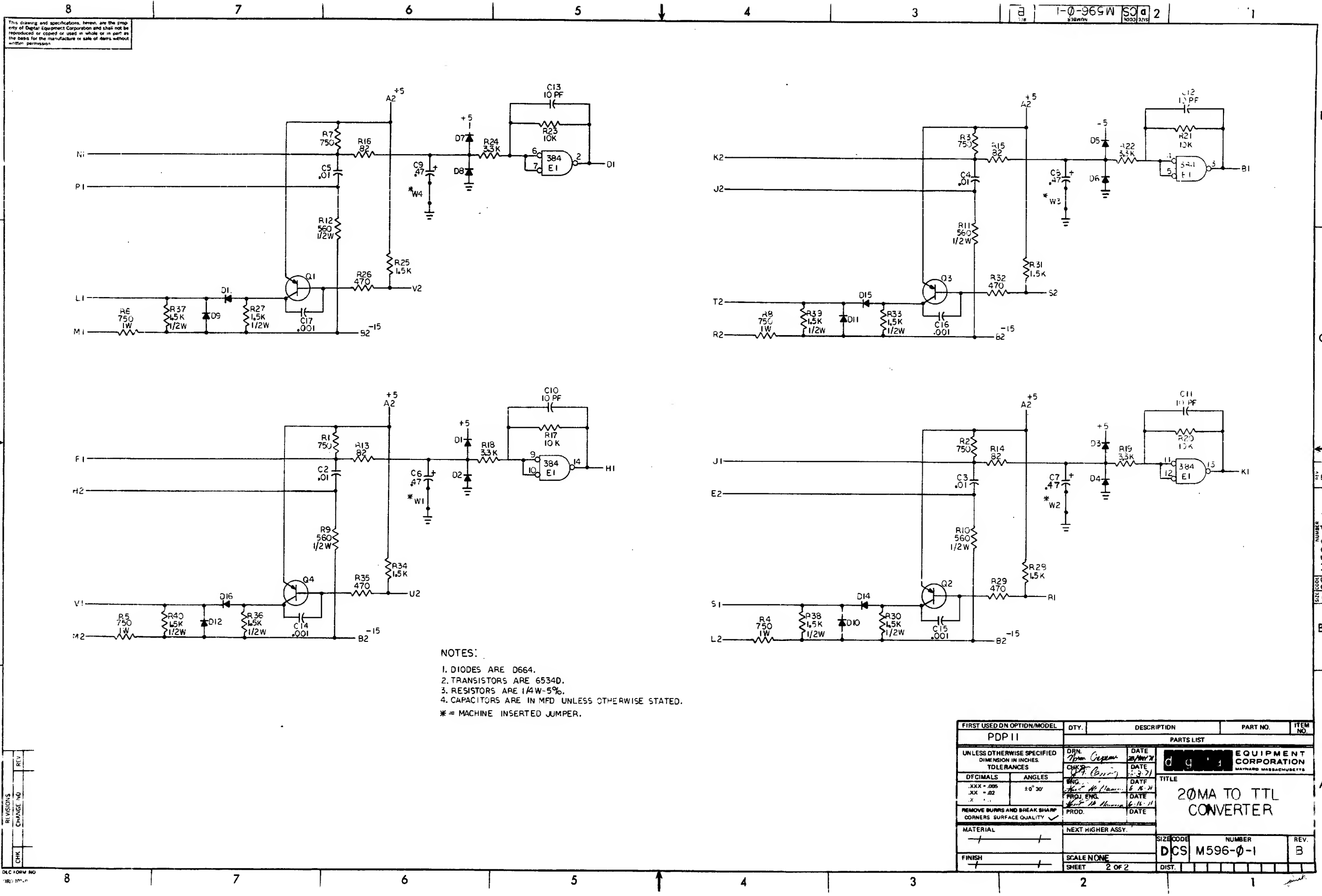
1. DETAILS ON COMPONENTS ARE NOTED IN THE PARTS REFERENCE, PLACEMENT IS NOTED IN THE COMPONENT PLACEMENT DIAGRAM. CAPACITORS WITHOUT NOTED VALUES ARE .01 MFD.
2. GND AND +5V ARE USUALLY PIN 7 AND PIN 14, RESPECTIVELY. EXCEPTIONS ARE:

IC TYPE	GND	+5V
DEC 384	PIN 1	PIN 8



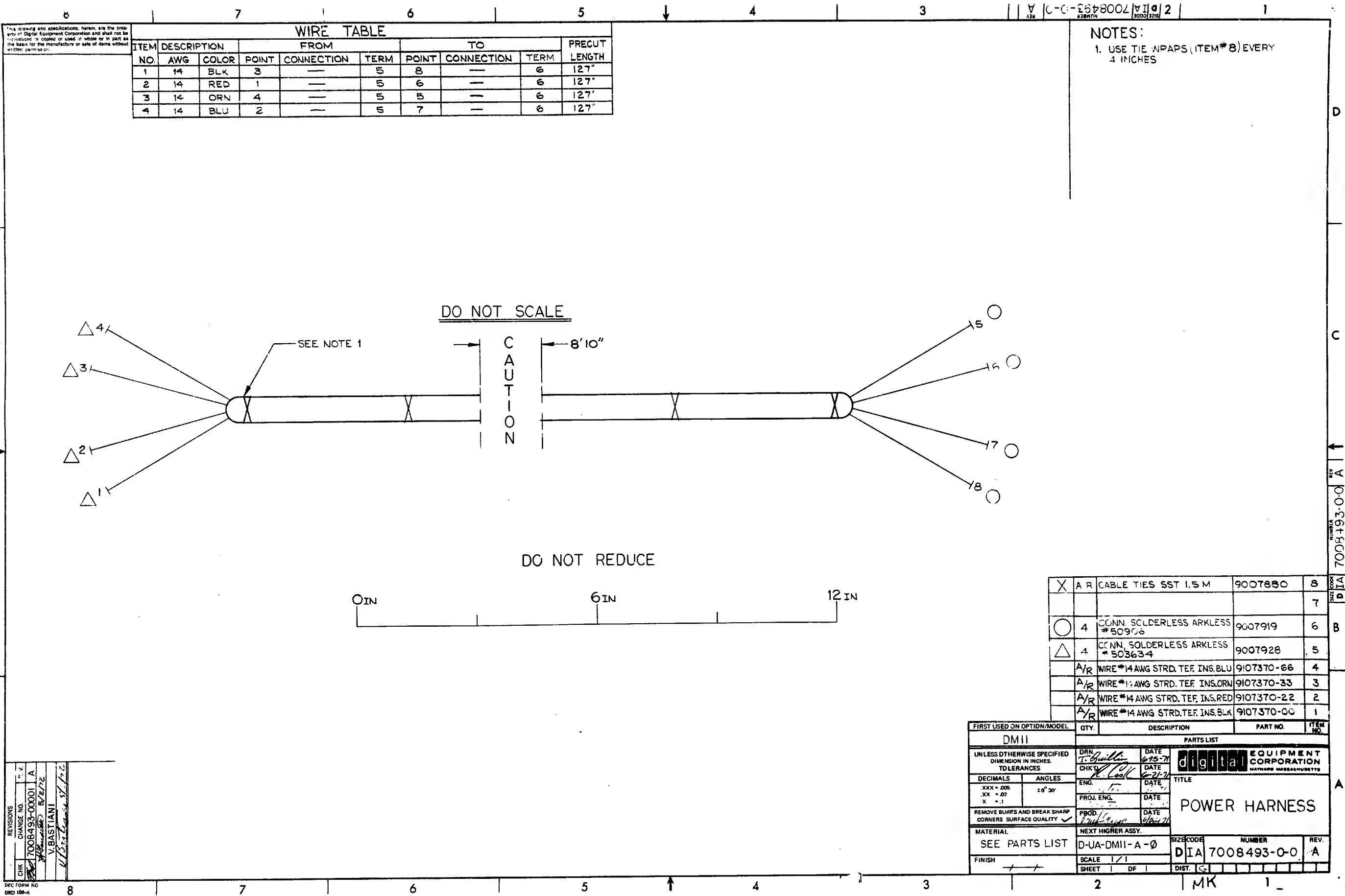
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81	1509486-00081
82	1509486-00082
83	1509486-00083
84	1509486-00084
85	1509486-00085
86	1509486-00086
87	1509486-00087
88	1509486-00088
89	1509486-00089
90	1509486-00090
91	1509486-00091
92	1509486-00092
93	1509486-00093
94	1509486-00094
95	1509486-00095
96	1509486-00096
97	1509486-00097
98	1509486-00098
99	1509486-00099
100	1509486-00100

ETCH REV. C		FIRST USED ON OPTION / MOD		QTY	DESCRIPTION	PART NO.	ITEM NO.
PDP-11							
UNLESS OTHERWISE SPECIFIED		UNLESS OTHERWISE SPECIFIED		PARTS LIST			
DIMENSIONS IN INCHES		DIMENSIONS IN INCHES		EQUIPMENT CORPORATION			
TOLERANCES		TOLERANCES		MAYNARD MASSACHUSETTS			
DECIMALS FRACTIONS ANGLES		DECIMALS FRACTIONS ANGLES		TITLE			
± .005 ± 1/64 ± 1°		± .005 ± 1/64 ± 1°		20MA TO TTL CONVERTER			
FINAL SURFACE QUALITY		FINAL SURFACE QUALITY		REVISION			
REMOVE BURRS AND BREAK SHARP CORNERS		REMOVE BURRS AND BREAK SHARP CORNERS		NUMBER			
MATERIAL		MATERIAL		REV			
FINISH		FINISH		3			
SCALE		SCALE		DICS M596-0-1			
SHEET		SHEET		1 OF 2			



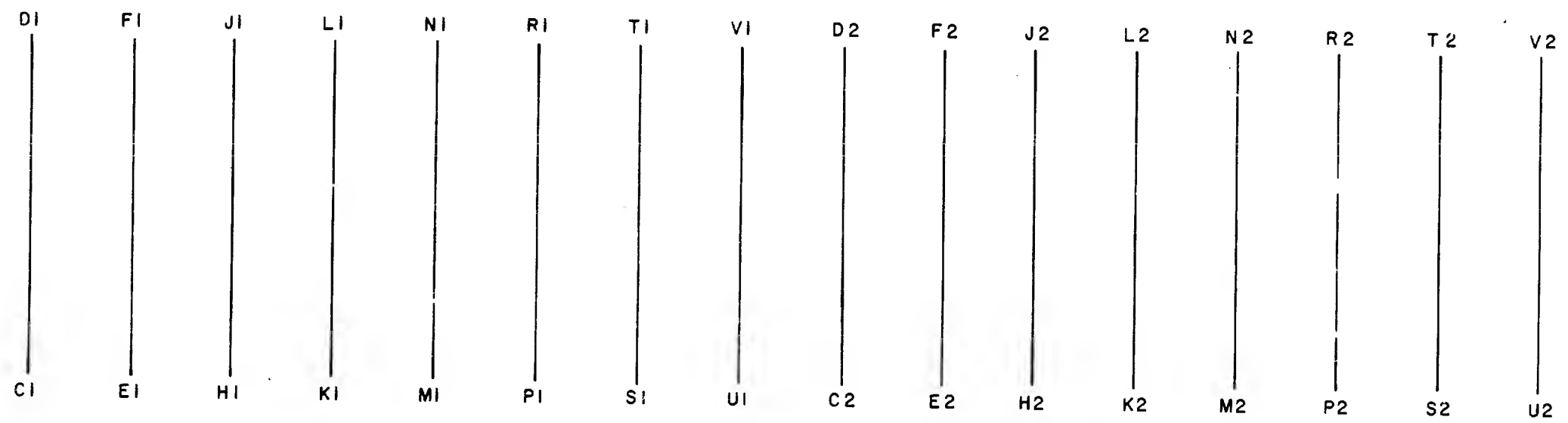
NOTES:
1. DIODES ARE D664.
2. TRANSISTORS ARE 6534D.
3. RESISTORS ARE 1/4W-5%.
4. CAPACITORS ARE IN MFD UNLESS OTHERWISE STATED.
* = MACHINE INSERTED JUMPER.

FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP 11					
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES		DATE	PARTS LIST		
DECIMALS	ANGLES	DATE	EQUIPMENT CORPORATION		
.XXX - .005	±0° 30'	DATE	TITLE		
.XX - .02		DATE	20MA TO TTL CONVERTER		
.X - .01		DATE	SIZE CODE		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		DATE	NUMBER		
MATERIAL		DATE	DCS M596-0-1		
FINISH		DATE	REV.		
		DATE	B		
		DATE	SHEET 2 OF 2		
		DATE	DIST.		



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REV NUMBER SIZE CODE



1	HANDLE, FLIP CHIP - MAGENTA	9008337-06	5
2	EYELET	9006732	4
1	ETCHED CIRCUIT BOARD	5009605	3
	MODULE ECC HISTORY	B-MH-M974-0-6	2
	ASSY/DRILLING HOLE LOCATION	D-AH-M974-0-5	1
QTY.	DESCRIPTION	DEC PART NO.	ITEM NO.
	PARTS LIST		

REVISIONS CHK'D NO REV	DRN. S. COPPER		DATE 5-13-71		TRANSISTOR & DIODE CONVERSION CHART		digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS	TITLE DM 11 MAINTENANCE JUMPER					
	CHK'D L. A. C. MOORE		DATE 5-14-71		DEC	EIA		DEC	EIA	SIZE B	CODE CS	NUMBER M974-0-1	REV
	ENG S. SHAMMAS		DATE 6-16-71										
	PROD		DATE										



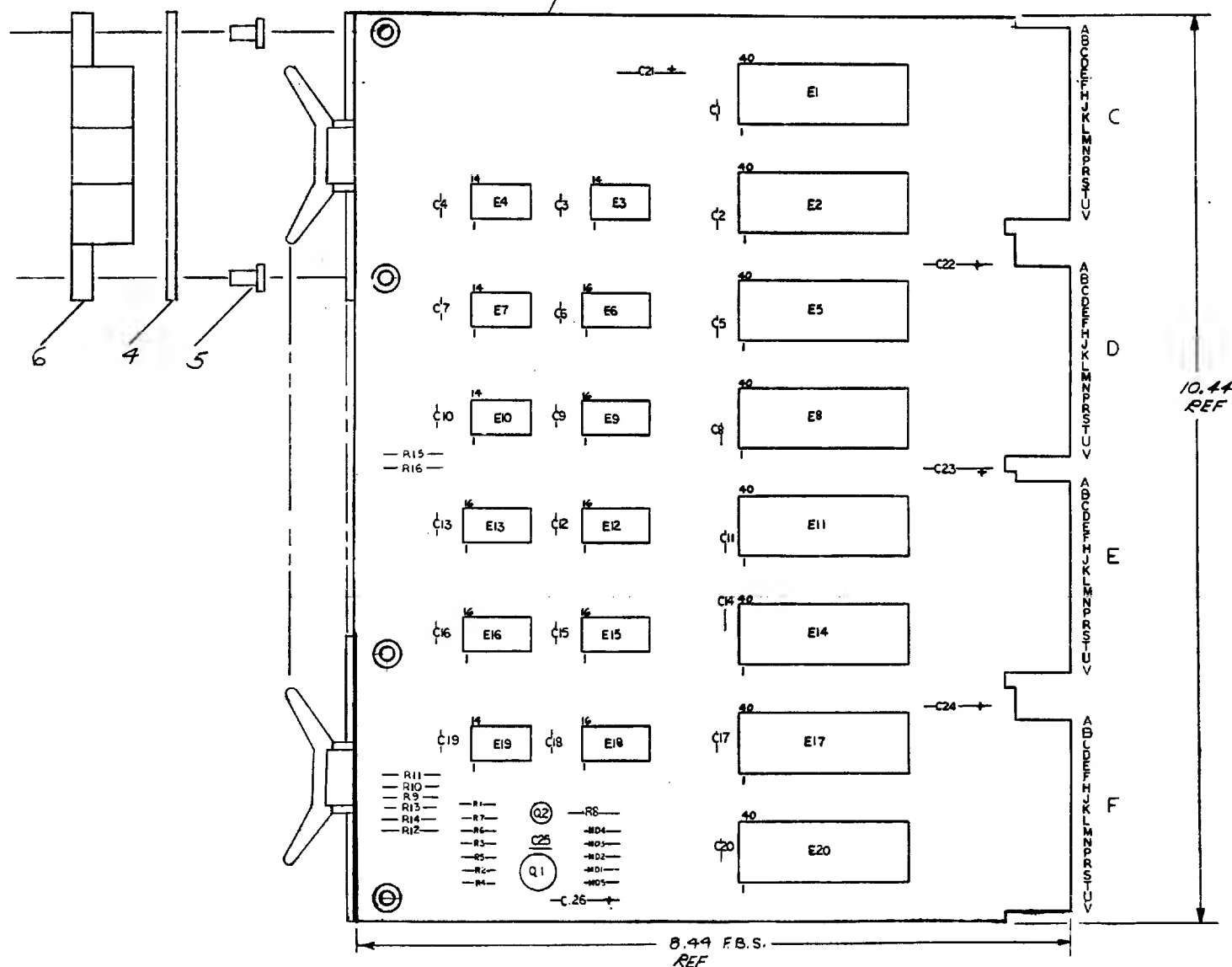
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DIGITAL EQUIPMENT CORPORATION

NOTES:

NOTES:

1. ALL 19-10459 UART PINS ARE -12VOLTS.
2. ALL SIGNALS THAT BEGIN WITH TAG "BIF" ARE INTERNAL TO THE BOARD AND DO NOT GO TO EXTERNAL PINGERS.



1	C25	CAP 1000PF, 100V	10000042	24
8	R9 THRU R16	RES 30K 1/4 W, 5%	1302394	23
5	C21 THRU C24, C26	CAP 6.8UF, 35V	1005306	22
20	C1 THRU C20	CAP .01UF, 50V, 20%	1001670	21
4	D1, D2, D3, D5	DIODE D672	1105275	20
1	D4	DIODE IN752A	1102808	19
4	R2 THRU R5	RES. 10, 1/4 W, 5%	1301317	18
2	R6, R7	RES. 1K, 1/4 W, 5%	1300365	17
1	R8	RES. 470, 1/2, 5%	1300315	16
1	R1	RES. 220, 1/4 W 5%	1300271	15
1	Q1	TRAN DEC 2904	1501742	14
1	Q2	TRAN DEC 6534D	150340900	13
3	E6, E9, E12	IC. DEC 74155	1910656	12
8	E11, E8, E5 E2, E1, E7, E14, E20	IC UART	1910459-01	11
2	E3, E4	IC. DEC 7408	1910155	10
4	E13, E18, E15, E16	IC. DEC 74151	1909936	9
2	E2, E10	IC. DEC 7404	1909686	8
1	E7	IC. DEC 7400	1905575	7
4		HANDLE (FLIP CHIP) MAGENTA	9008337-06	6
8		EYELET	9006732	5
1		ETCHED CIRCUIT BOARD	5010080	4
REF		MODULE ECO HISTORY	B-MH-M7280-46	3
REF		ASSY/DRILLING HOLE LAYOUT	D-AH-M7280-45	2
REF		X-Y COORDINATE HOLE LOCATION	K-CO-M7280-04	1
QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

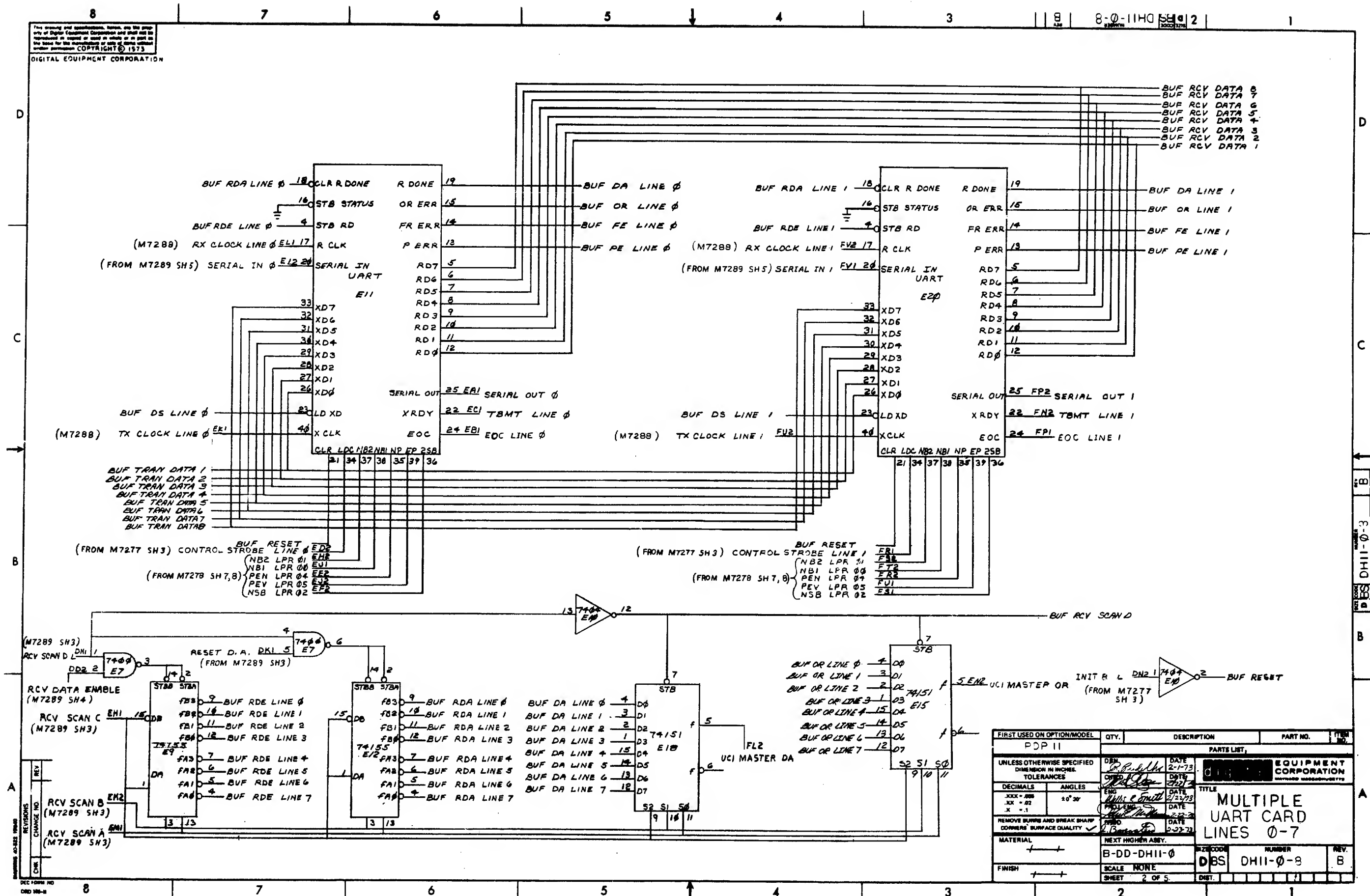
A	IC TYPE	PIN 7	PIN 16
	TC DEC 74153	8	16
	IC UART	9	1
	IC DEC 74151	8	16
	IC TYPE	GND	+5V
	GND AND +5V ARE USUALLY PIN 7 AND 16 RESPECTIVELY EXCEPTIONS ARE STATED ABOVE		
	IC PIN LOCATIONS		

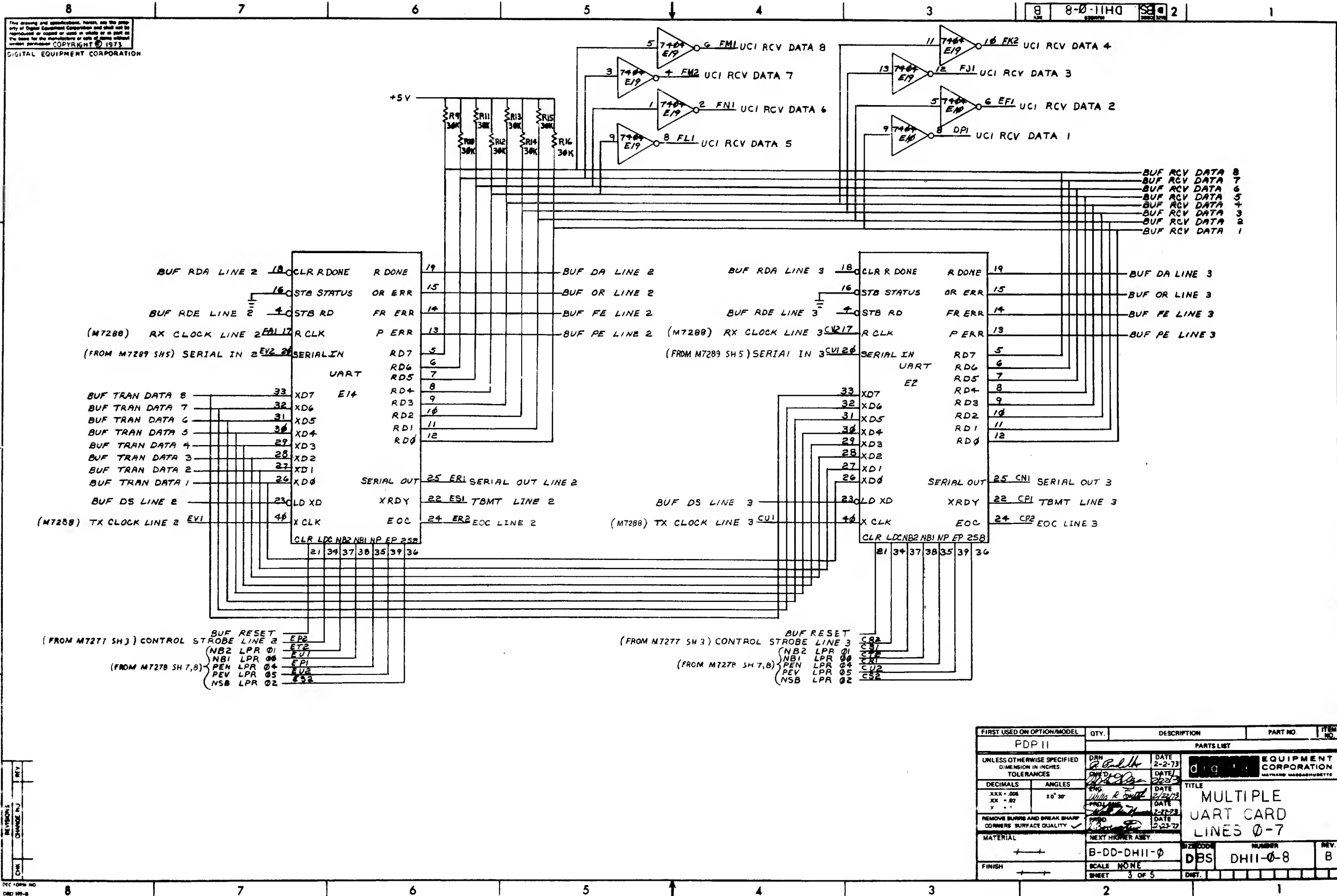
$^{+5V}$
 A02, B02
 C02, D02

C1 100nF 0.1uF	C21 100nF 0.1uF
----------------------	-----------------------

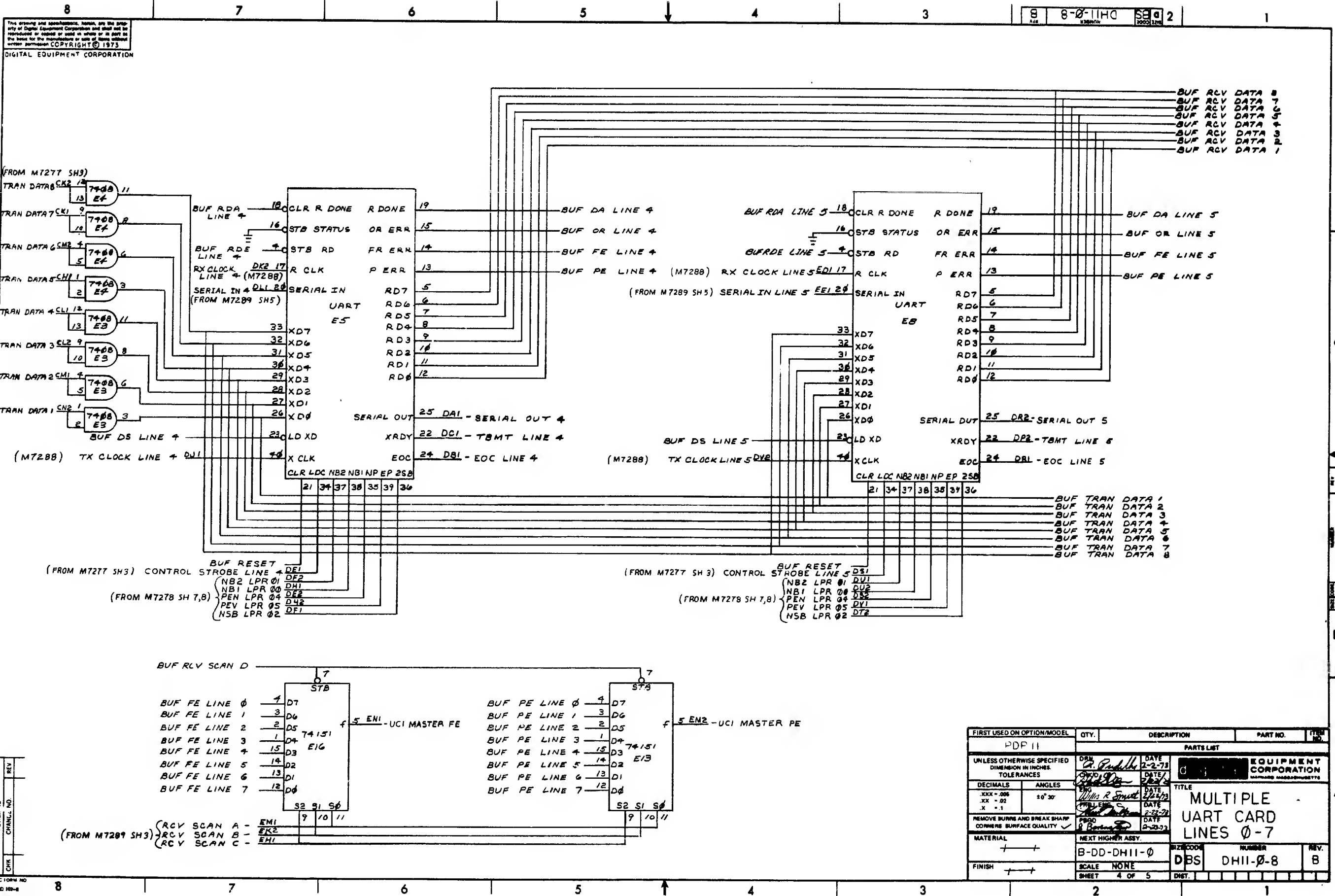
A02, A71, B02, B71 GND
 C02, C71, D02, D71

FIRST USED ON OPTION MODEL		PARTS LIST									
PDP 11		ETCH BOARD REV		C							
		DEC 65340	1503409								
		DEC 2904	2N 1132								
		IN752A	+								
		D672	IN 3653								
DEC NO.	EIA NO.	DEC NO.	EIA NO.								
SEMICONDUCTOR CONVERSION CHART				DATE 2-14-73 DATE 1-13-73 DATE 1-31-73 DATE 2-23-73 TITLE MULTIPLE UART CARD LINES 0-7 EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS SCALE NONE SHEET 1 OF 5 DBS DH11-0-8 8							



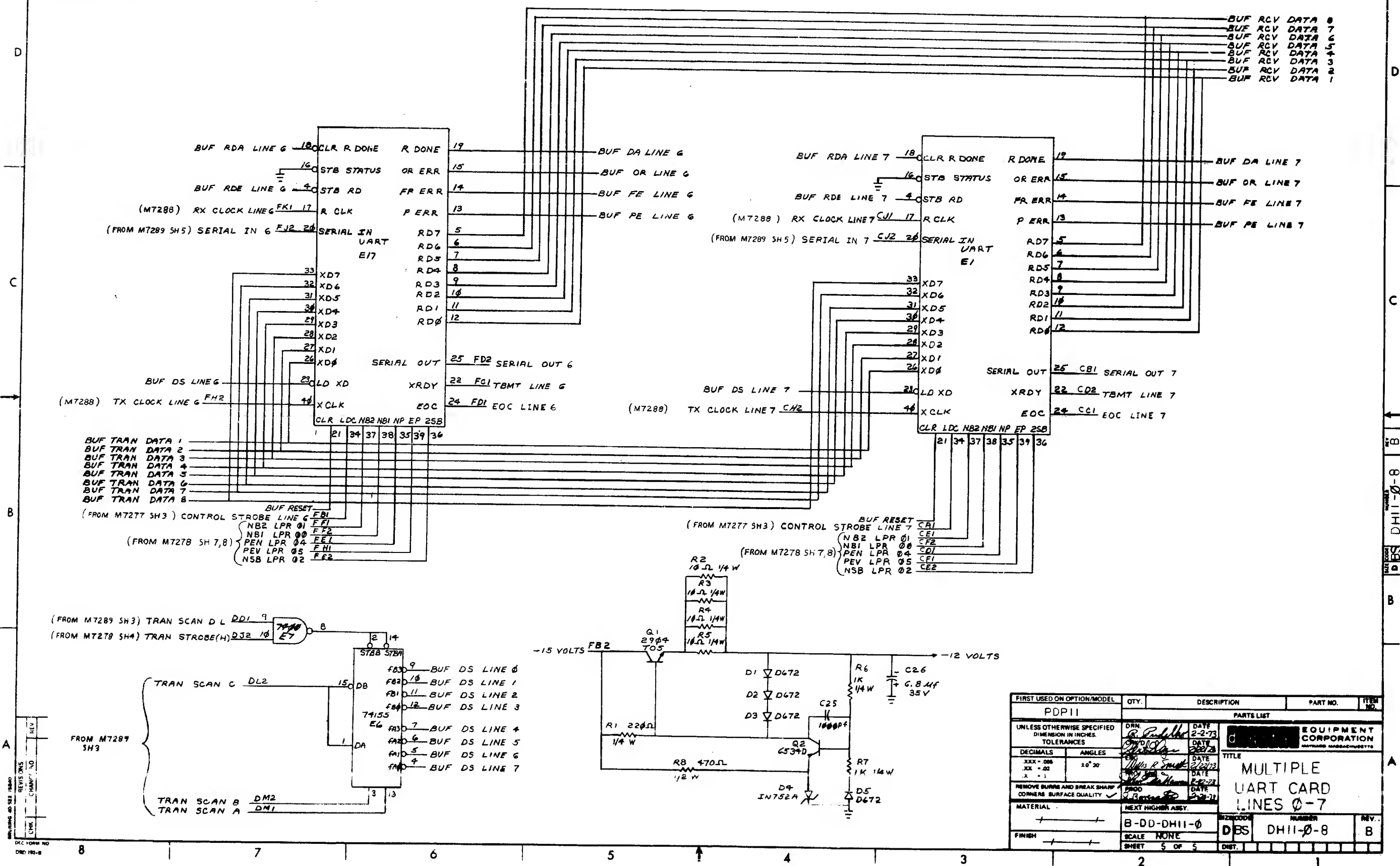


FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP 11				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES.	DRN	DATE	EQUIPMENT CORPORATION MAYLAND MASSACHUSETTS	
TOLERANCES	CHK'D	DATE	TITLE	
DECIMALS	ENG	DATE	MULTIPLE	
ANGLES	PROJ	DATE	UART CARD	
XXX - .006	PROJ	DATE	LINES 0-7	
XX - .02	PROJ	DATE	NUMBER	
X - .1	PROJ	DATE	DH11-0-8	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PROJ	DATE	REV.	
MATERIAL	PROJ	DATE	B	
FINISH	PROJ	DATE	B-00-DH11-0	
	PROJ	DATE	SCALE NONE	
	PROJ	DATE	SHEET 3 OF 5	



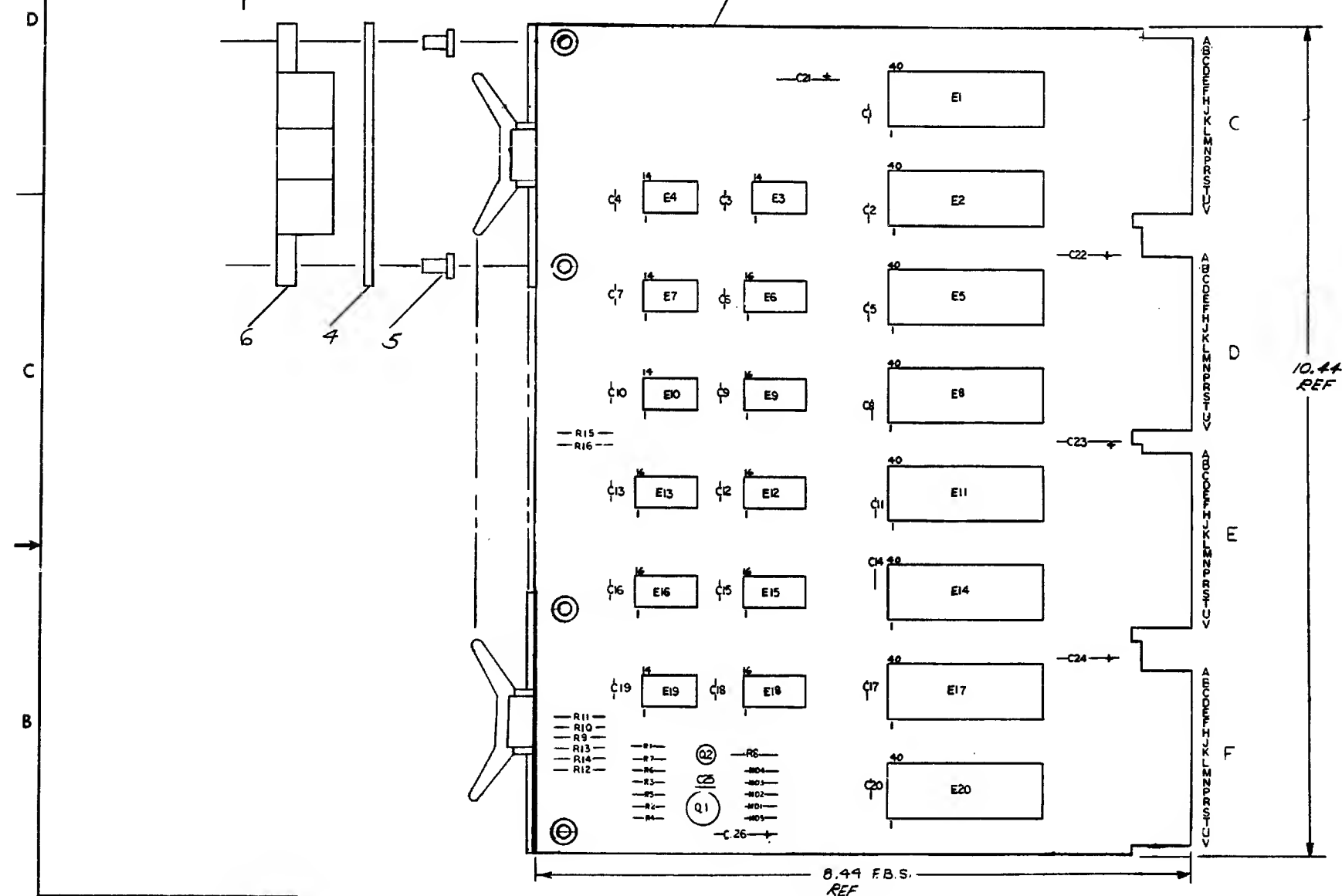
FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP 11					
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES		DATE 2-2-73	PARTS LIST		
DECIMALS		DATE 2-2-73	EQUIPMENT CORPORATION MILFORD MASSACHUSETTS		
ANGLES		DATE 2-2-73			
.XXX - .005		DATE 2-2-73			
.XX - .02		DATE 2-2-73			
.X - .1		DATE 2-2-73			
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		DATE 2-2-73	TITLE MULTIPLE UART CARD LINES 0-7		
MATERIAL		DATE 2-2-73			
FINISH		DATE 2-2-73			
		DATE 2-2-73			
NEXT HIGHER ASSY.		DATE 2-2-73	B-DD-DH11-0		
		DATE 2-2-73			
		DATE 2-2-73			
		DATE 2-2-73			
SCALE		DATE 2-2-73	SHEET 4 OF 5		
		DATE 2-2-73			
		DATE 2-2-73			
		DATE 2-2-73			
SHEET		DATE 2-2-73	DST.		
		DATE 2-2-73			
		DATE 2-2-73			
		DATE 2-2-73			
		DATE 2-2-73	REV. B		
		DATE 2-2-73			
		DATE 2-2-73			
		DATE 2-2-73			
		DATE 2-2-73	REV. B		
		DATE 2-2-73			
		DATE 2-2-73			
		DATE 2-2-73			

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NOTES:

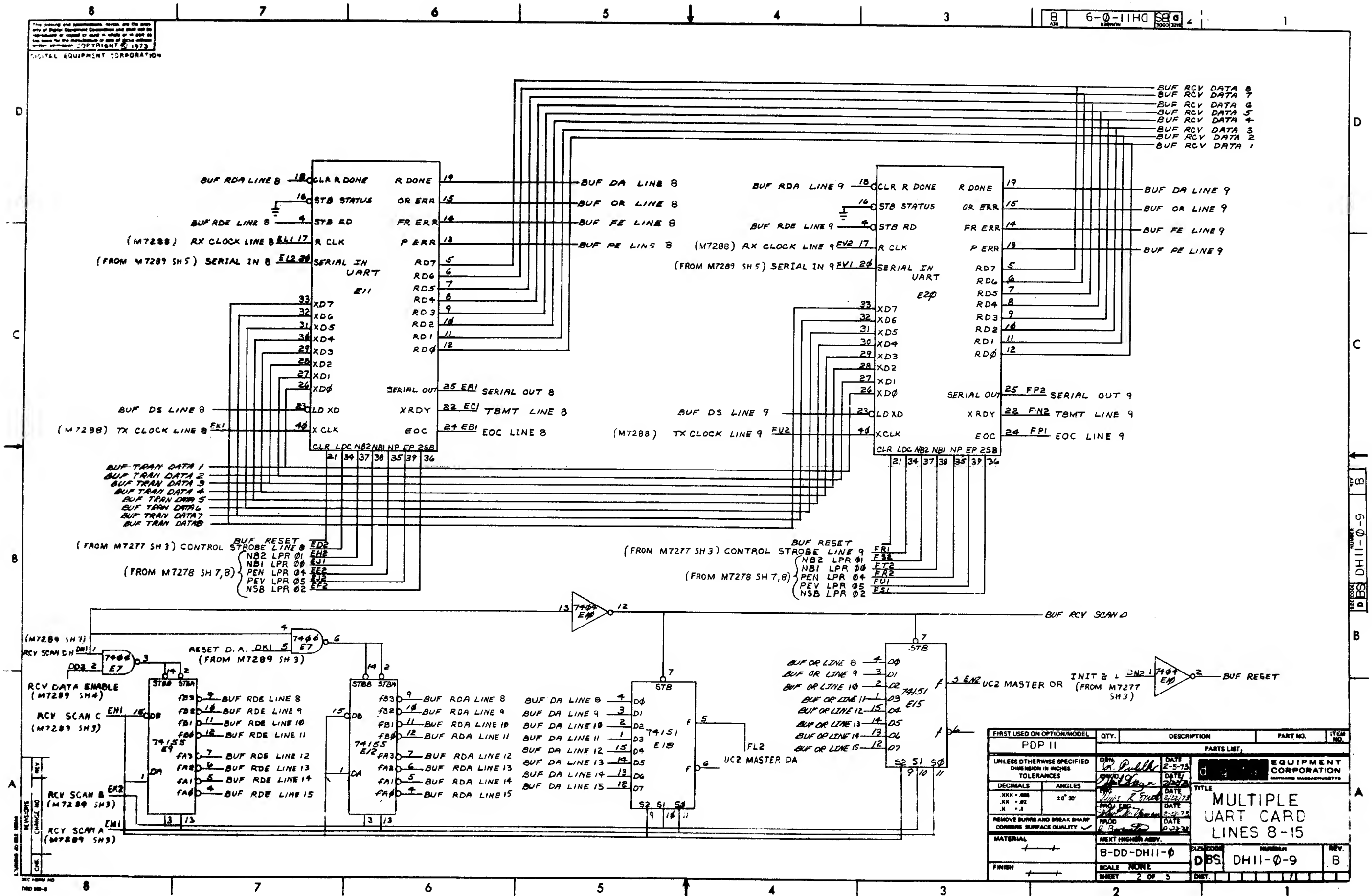
1. ALL 19-10459 WART PINS ARE -12 VOLTS.
2. ALL SIGNALS THAT BEGIN WITH TAG "BUF" ARE INTERNAL TO THE BOARD AND DO NOT GO TO EXTERNAL PINGERS.



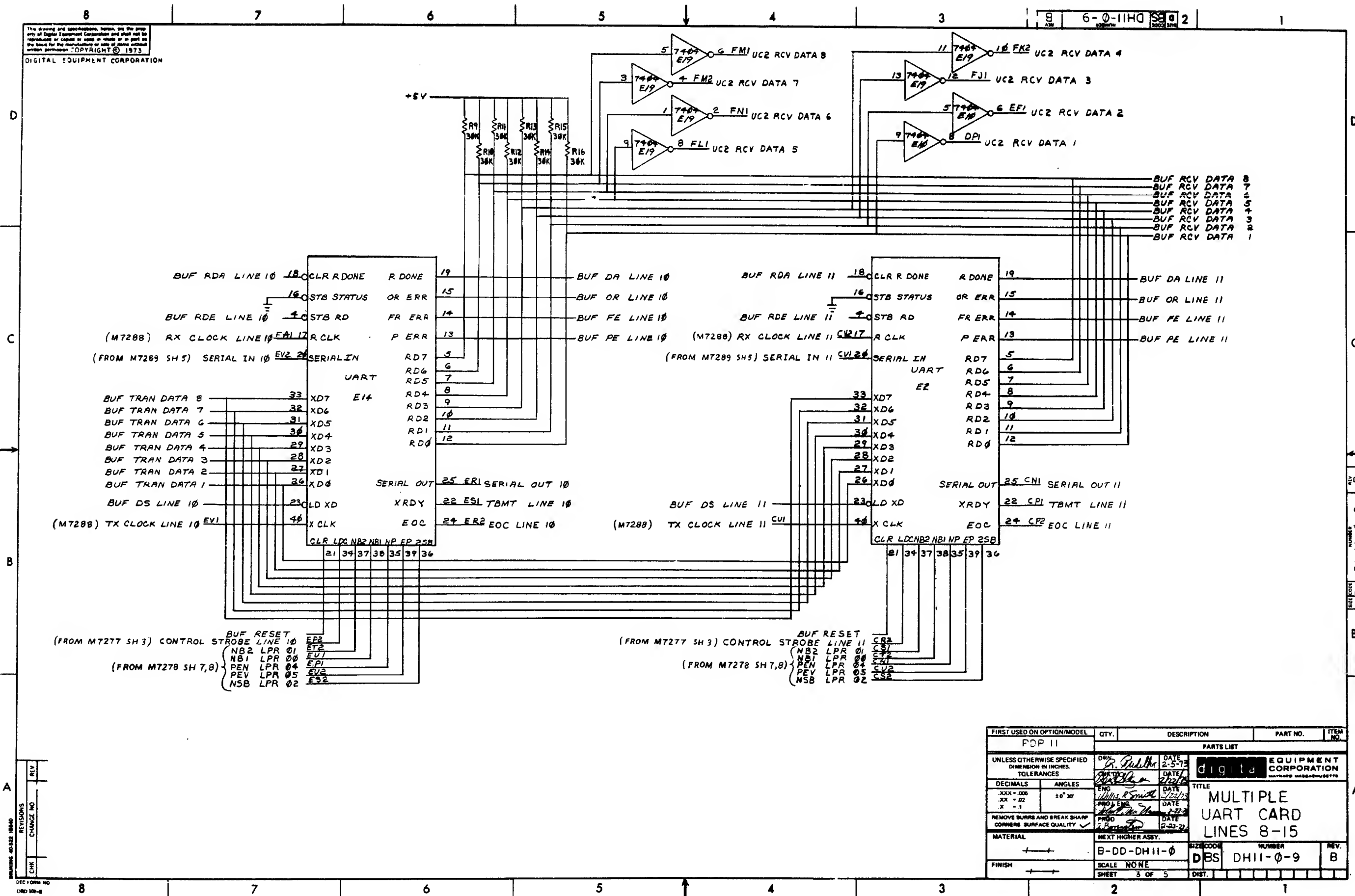
1	C25	CAP 1000PF, 100V	1000042	24
8	R9 THRU R16	RES. 30K 1/4W 5%	1302394	23
5	C21 THRU C24, C26	CAP 6.8UF 35V	1005306	22
20	C1 THRU C20	CAP .01uH, 50V, 20%	1007670	21
4	D1, D2, D3, D5	DIODE D672	1105275	20
1	D4	DIODE IN752A	1102808	19
4	R2 THRU R5	RES. 10, 1/4W, 5%	1301317	18
2	R6, R7	RES. 1K, 1/4W, 5%	1300365	17
1	R8	RES. 470, 1/2, 5%	1300375	16
1	R1	RES. 220, 1/4W 5%	1300271	15
1	Q1	TRAN DEC 2904	1501742	14
1	Q2	TRAN DEC 6534D	15C340900	13
3	E6, E7, E12	IC. DEC 74155	1910656	12
8	E11, E8, E5, E2, E1, E7, E14, E20	IC. 14ART	1910459-01	11
2	E3, E4	IC. DEC 7408	1910155	10
4	E13, E18, E15, E16	IC. DEC 74151	1909936	9
2	E12, E10	IC. DEC 7404	1909686	8
1	E7	IC. DEC 7400	1905575	7
4		HANDLE (FLIP CHIP) MAGENTA	9008337-06	6
8		EYELET	9006732	5
1		ETCHED CIRCUIT BOARD	5010080	4
REF		MODULE ECO HISTORY	B-MH-MT280-66	3
REF		ASSY/DRILLING HOLE LAYOUT	D-AH-MT280-65	2
REF		X-Y COORDINATE HOLE LOCATION	K-CA-MT280-64	1
QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

FIRST USED ON OPTION MODEL		REF DESIGNATION		PART LIST		EQUIPMENT CORPORATION	
PDP 11		ETCH BOARD REV		C		MAYFIELD, MASSACHUSETTS	
				DATE		TITLE MULTIPLE UART CARD LINES 8-15	
				2-16-73			
				DATE			
				2-16-73			
				DATE			
				2-23-73			
				DATE			
				2-23-73			
				DATE			
				2-23-73			
				NEXT HIGHER ASSY			
				B-DD-DH11-0			
				SCALE			
				NONE			
				SHEET			
				OF 5			
				DATE			
				2-23-73			
DEC NO.		EIA NO.		DEC NO.		EIA NO.	
DEC 65340		1503409		DEC 2904		2N 1132	
IN752A		+ +		IN752A		+ +	
D672		IN 3653					
SEMICONDUCTOR CONVERSION CHART							
D BS		DH11-0-9		B		B	

A			
	IC DEC 74153	B	/6
	IC UART	3	1
	IC DEC 74151	8	/6
	IC TYPE	GND	+ 5V
	GND AND +V ARE USUALLY PIN 7 AND 14 RESPECTIVELY EXCEPTIONS ARE STATED ABOVE		
	IC PIN LOCATIONS		



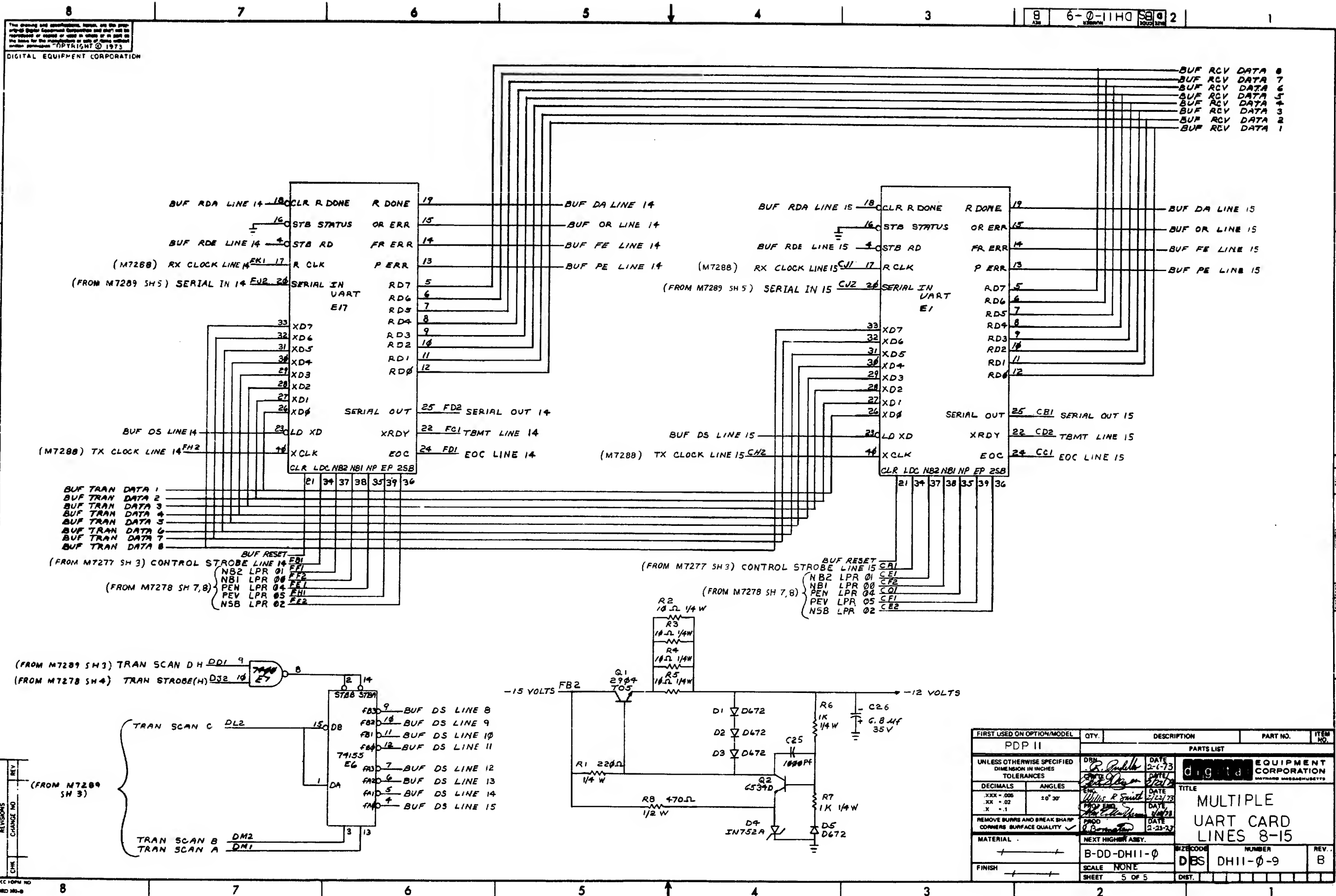
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FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP 11				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES				
DECIMALS	ANGLES			
.XXX - .008	±0° 30'			
.XX - .02				
.X - .1				
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY				
MATERIAL	NEXT HIGHER ASSY.			
FINISH	SCALE	NONE		
	SHEET	3 OF 5		

DATE	2-5-73	DATE	2-22-73	DATE	2-22-73	DATE	2-22-73
DRN	R. P. P. P.	ENG	W. R. Smith	PROJ. ENG.	W. R. Smith	PROD.	W. R. Smith
TITLE							
MULTIPLE UART CARD LINES 8-15							
B-DD-DH11-0				DBS DH11-0-9			
SHEET				REV. B			





FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP 11					
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES		DATE	2-1-73	DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
DECIMALS	ANGLES	DATE	2-23-73	TITLE	
.XXX - .005	20° 30'	DATE	2-23-73	MULTIPLE	
.XX - .02		DATE	2-23-73	UART CARD	
.X - .1		DATE	2-23-73	LINES 8-15	
REMOVE BUMPS AND BREAK SHARP CORNERS SURFACE QUALITY		DATE	2-23-73	REV.	
MATERIAL		NEXT HIGHER ASSEMBLY		B	
FINISH		SCALE		NONE	
		SHEET		5 OF 5	

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DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS						
ENGINEERING SPECIFICATION				DATE February 5 1973		
TITLE DH11 Multiplexor						
REVISIONS						
REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE
A	CHANGE PER ECO	DH11-00002	MCNAMARA	6/73	J.M. Hamann	6-6-73
B	CHANGE PER ECO	DH11-00007	MCNAMARA	10/74	J.M. Hamann	11-5-74
ENG		APPD	SIZE	CODE	NUMBER	REV
A		A	A	SP	DH11-0-5	B
DEC FORM NO. DRA 107						
SHEET 1 OF 25						

ENGINEERING SPECIFICATION				CONTINUATION SHEET	
TITLE DH11 Multiplexor					
General Description					
The DH11 Multiplexor connects the PDP-11 with 16 asynchronous serial communications lines operating with individually programmable parameters. These parameters are:					
Character length: 5,6,7, or 8 bit					
Number of Stop Bits: 1 or 2 for 6,7,8 bit characters					
1 or 1.5 for 5 bit characters					
Parity generation and detection: Odd, Even, or None					
Operating Mode: Half Duplex or Full Duplex					
Transmitter Speed: 0,50,75,110,134.5,150,200,300,600,1200,1800,2400,4800,9600, Ext A, Ext B.					
Receiver Speed: 0,50,75,110,134.5,150,200,300,600,1200,1800,2400,4800,9600, Ext A, Ext B.					
Breaks may be detected or generated on each line.					
The DH11 multiplexor uses 16 double-buffered MOS/LSI receivers to assemble the incoming characters. An automatic scanner takes each received character and the line number and deposits that information in a first-in, first-out buffer memory referred to as the "silo". The bottom of the "silo" is a register which is addressable from the Unibus.					
The transmitter in the DH11 also uses double-buffered MOS/LSI units. They are loaded directly from message tables in the PDP-11 memory by means of single cycle direct memory transfers (NPR). The current addresses and byte counts for each line's message table are stored in semiconductor memories located in the DH11. This reduces the Unibus time taken for the NPR transfers to one NPR cycle per character transmitted. The NPR cycle used is lengthened slightly.					
As many as 16 DH11's may be placed on a single PDP-11 processor, creating a total capacity of 256 lines.					
SIZE		CODE	NUMBER	REV	
A		SP	DH11-0-5	B	
DEC FORM NO DEC 16-(381)-1022-N370					
DRA 108					
SHEET 2 OF 25					

ENGINEERING SPECIFICATION				CONTINUATION SHEET	
TITLE DH11 Multiplexor					
II. Multiplexor Control Section					
2.1 The DH11 multiplexor control is located in a prewired double system unit. It contains NPR interface logic, interrupt logic, a clock card, transmitter and receiver scanners, etc.					
2.2 The DH11 will operate under the following conditions:					
Temperature: plus 50 to plus 110 degrees F.					
Humidity: zero to 95% non condensing					
2.3 The power consumption of the DH11-AA,AB and AC logic (excluding the level conversion modules, which run off the level conversion/distribution panel power supply) is:					
Plus 5: 8.4 amperes (DH11 alone)*					
11.2 amperes (DH11 plus DM11-BB Modem Control)*					
Plus 15: None					
Minus 15: 240 milliamperes					
2.4 The power consumption of the DH11-AD and AE logic.					
DH11-AD					
Plus 5: 10.8 amperes*					
Plus 15: 400 milliamperes					
Minus 15: 645 milliamperes					
DH11-AE					
Plus 5: 8.6 amperes*					
Plus 15: 100 milliamperes					
Minus 15: 340 milliamperes					
2.5 The DH11 receiver units provide serial to parallel conversion of 5,6,7, or 8 bit code with one start bit and at least one stop bit. An extra data bit is added when parity operation is selected. The allowable input distortion is 43.75%, assuming no speed distortion. The maximum allowable speed distortion is 4.8% for 8 bit characters.					
2.6 The DH11 transmitters provide parallel to serial conversion of 5,6,7 or 8 bit code with one start bit and one, one and a half (5 bit only), or two (6,7, or 8 bit only) stop units. An extra data bit is added if parity operation is selected. The number of bits per character, the number of stop marks, and parity mode are selectable on a per-line basis, but must be the same as the					
* Add .2 amperes if this is the last option on the Unibus. (The Unibus terminator consumes .2 amperes.)					
SIZE		CODE	NUMBER	REV	
A		SP	DH11-0-5	B	
DEC FORM NO DEC 16-(381)-1022-N370					
DRA 108					
SHEET 4 OF 25					

ENGINEERING SPECIFICATION				CONTINUATION SHEET	
TITLE DH11 Multiplexor					
1.0 Variations					
1.1 The DH11 Multiplexor is available in five variations:					
The DH11-AA consists of a double system unit, all modules necessary to implement a 16 line asynchronous multiplexor, a 5-1/4 inch level conversion and distribution panel with its own power supply,* and a data cable between the logic in the double system unit and the level conversion/distribution panel. The modules for level conversion are not included, so that the type and quantity of lines may be customized to the customer's requirements.					
The DH11-AB is the same as the DH11-AA, but does not include the level conversion/distribution panel or its associated power supply. Instead of a data cable to a distribution panel, a data cable to the DC08CS telegraph converter panel is supplied.					
The DH11-AC is the same as the DH11-AA, except that the power supply on the level conversion/distribution panel is arranged for 240 volt, 50 Hertz operation. (there is no need for a 50 Hertz version of the DH11-AB because it is a processor-powered option).					
The DH11-AA, -AB, and -AC include pre-wired slots in the double system unit for the insertion of the DM11-BB modem control.					
The DH11-AD consists of a double system unit, all modules necessary to implement a 16 line asynchronous multiplexor, EIA level conversion for the data lines, modem control with EIA level conversion, and a 16 line EIA distribution panel.					
The DH11-AE is the same as the DH11-AD except that the modem control modules are not included.					
CAUTION: THE DH11 USES HEX MODULES AND THUS CANNOT BE MOUNTED IN A 8111 EXPANDER BOX. THE 11/35, 11/45 TYPE BOXES MUST BE USED.					
*The power supply for the distribution panel is also 5-1/4" high. Generally, it can be mounted on the rear of the rack in a position opposite the distribution panel which is usually mounted on the front of the rack.					
SIZE		CODE	NUMBER	REV	
A		SP	DH11-0-5	B	
DEC FORM NO DEC 16-(381)-1022-N370					
DRA 108					
SHEET 3 OF 25					

ENGINEERING SPECIFICATION		CONTINUATION SHEET	
TITLE DH11 Multiplexor			
<p>2.6 Continued</p> <p>corresponding receiver. The serial data rate is determined by a crystal clock and is program controllable on a per-line basis. The transmitter speeds may be program controlled independently of the receiver speeds. Output distortion is less than 2%.</p> <p>2.7 Interface to and from the control section:</p> <p>Outputs: There are 16 data lines at TTL levels using negative logic (mark=0).</p> <p>Inputs: There are 16 data lines at TTL levels using negative logic (mark=0).</p> <p>The input leads from the level conversion/distribution panel are equipped with pull up resistors which place lines not equipped with level conversion in a permanently SPACING condition. Logic in the DH11 receivers prevents this condition from assembling null characters on a continuous basis, however.</p> <p>For the DH11-AD and AE options, EIA level conversion is provided for the 16 input and output TTL data lines.</p> <p>2.8 Bus Load: The DH11 presents two bus loads to the Unibus. If a DM11-BB modem control is added, that will be an additional bus load. The DH11-AD is three bus loads.</p> <p>2.9 Interrupts</p> <p>2.9.1. There are two kinds of receiver interrupts; both are enabled by bit 6 of the System Control Register.</p> <p>2.9.1.1 Receiver Interrupt (System Control Register, bit 7)</p> <p>This interrupt, when enabled, occurs whenever the number of entries in the silo exceeds the "silo status alarm level" that the program has stored in the low byte of the Silo Status Register. (The program can examine that actual silo fill at any time by examining the high byte of the Silo Status Register.)</p>			
SIZE	CODE	NUMBER	REV
A	SP	DH11-0-5	B
DEC FORM NO DEC 16-(381)-1022-N370 DRA 108			
SHEET 5 OF 25			

ENGINEERING SPECIFICATION		CONTINUATION SHEET	
TITLE DH11 Multiplexor			
<p>2.9.1.2 Storage Overflow Interrupt (System Control, bit 14)</p> <p>This interrupt, when enabled, occurs whenever the character storage silo is full and the DH11 hardware has a need to store an additional character there. Should this situation occur, this does not necessarily mean that data has been lost. The reader is referred to Section 5.9. "Programming-Discussion"</p> <p>2.9.2 There are two kinds of transmitter interrupt; both are enable by bit 13 of the System Control Register.</p> <p>2.9.2.1 Transmitter Interrupt (System Control, bit 15)</p> <p>This interrupt, if enabled, occurs whenever one or more lines have finished the transmission of a complete string of characters. Specifically, it occurs after the NPR cycle that loaded the last character to be transmitted (and hence incremented the byte count to zero).</p> <p>2.9.2.2 Non-Existant Memory Interrupt (System Control, Bit 16)</p> <p>This interrupt, when enabled, occurs whenever the DH11 addresses non-existant memory. Specifically, this interrupt occurs if the DH11 enters an NPR cycle, places an address on the Unibus and fails to receive a slave sync response for the location addressed within 20 microseconds.</p> <p>3.0 Description of the Hardware</p> <p>3.1 Receiver Hardware</p> <p>Reception on each line is by means of Universal Asynchronous Receiver/Transmitters (UARTS). These are 40 pin MOS/LSI chips which perform all the necessary functions for double buffered asynchronous character assembly.</p> <p>The receiver section of the UART samples the line at 16 times the bit rate of the signals to be received on that line. Upon detection of a MARK to SPACE transition, the UART counts 8 clock pulses and checks the state of the line again. This sampling will occur in the center of a normal start bit.</p>			
SIZE	CODE	NUMBER	REV
A	SP	DH11-0-5	B
DEC FORM NO DEC 16-(381)-1022-N370 DRA 108			
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TITLE DH11 Multiplexor			
<p>3.2 The Silo</p> <p>The silo is an MOS/LSI digital storage buffer that is 16 bits wide and 64 words deep. A 16 bit word is entered at the "top", from which it automatically bubbles down to the "lowest" location that does not already contain an entry. The "bottom" of the silo is the Next Received Character Register.</p> <p>There are three "registers" associated with the silo. One of these is the Next Received Character Register. The Next Received Character Register is a read-once register because it is, in fact, the bottom of the silo and reading it extracts that character from the silo and causes all other entries to bubble down one more position.</p> <p>The other two registers are byte-size registers and are contained within the Silo Status Register. One of them, the high byte, is read-only and contains the status of an up-down counter giving the actual fill level of the silo. The second register, in the low byte, is read/write and is used by the program to specify that silo fill level beyond which the program wishes to receive interrupt notification. The details of these registers are explored some more in Section 5.9 (Programming - Discussion) under the heading "Silo".</p> <p>3.3 Received Character Distortion</p> <p>Received characters may contain up to 43.75% distortion on any bit, due to the 16 times clock rate sampling. However, the overall bit rate must be accurate. Specifically, errors in bit rate are cumulative such that when the receiver samples the stop bit to see if it is there (if not, it's a "framing error") the error accumulated by that time must not exceed 43.75% of a bit time. The accumulated error (called "gross start-stop distortion") is calculated as (clock error x (number of data bits plus one) plus bias distortion of the final character). Assuming the reception of eight data bits, or seven data bits plus parity, 4.8% speed distortion would be permissible. Speed distortion (clock error, bit rate error) of any amount poses severe problems in an echo situation, however. Specifically, if a terminal sends to the DH11 at a slightly fast rate and the DH11 sends the exact same characters back to the terminal at the correct rate, the DH11 silo will eventually fill with un-echoed characters. This problem would not occur with keyboard terminals, but high speed tape senders should have their transmission speeds carefully checked before use with the DH11 or any other asynchronous communications interface made by any</p>			
SIZE	CODE	NUMBER	REV
A	SP	DH11-0-5	B
DEC FORM NO DEC 16-(381)-1022-N370 DRA 108			
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TITLE DH11 Multiplexor			
<p>3.1 Receiver Hardware (Continued)</p> <p>If that sample is a MARK, the receiver returns to its idling state, ready to detect another MARK to SPACE transition. If the sample was a SPACE, the receiver enters the data entry condition and samples the state of the line at subsequent sample points spaced 16 clock ticks from the center of the start bit. The number of samples taken is determined by the "character length" information entered into the UART via the Line Parameter Register. If parity checking has been enabled for this line, the receiver computes the parity of the character just received and compares it with the parity sense specified for reception on that line. If the parity sense differs, the parity error bit will be set.</p> <p>The character length, parity sense, number of stop bits, etc. that will be used by the UART to perform the above operations are stored within each UART in a control bits holding register. The control bits holding registers of each UART are addressable, on a write only basis, from the Unibus, by first setting the "Line selection bits" of the System Control Register and then loading the desired line parameters into the Line Parameter Register, from which they will automatically be transferred to the control bits holding register of the designated UART. It is important that no interrupt handling routine intervene and change the contents of the System Control Register during the above operation.</p>			
SIZE	CODE	NUMBER	REV
A	SP	DH11-0-5	B
DEC FORM NO DEC 16-(381)-1022-N370 DRA 108			
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ENGINEERING SPECIFICATION		CONTINUATION SHEET	
TITLE DH11 Multiplexor			
<p>3.3 Continued-</p> <p>company. In computing speeds, one may assume the DH11 receiver clock to be accurate within at least .05%.</p> <p>3.4 Transmitter Hardware</p> <p>Transmission on each line is by means of Universal Asynchronous Receiver/Transmitters (UARTs). These are 40 pin MOS/LSI chips which perform all the necessary functions for double buffered asynchronous character transmission. The transmitter section of the UART holds the serial output line at a MARKING state when idle. When the transmitter loading leads have been conditioned with the character to be transmitted and the data strobe lead has been brought high (these functions are performed by the NPR control), the UART will commence generation of a start space within one sixteenth of a bit time. The start space and all subsequent data hits are a full bit time each. The start space is followed by M data bits, where M is 5,6,7, or 8 as determined by the control bits holding register. (See the description of the receiver hardware for a description of the UART control bits holding registers and how they are loaded from the Line Parameter Register). The data bits are presented to the line least significant bit first. The parity bit, if parity generation is enabled, is calculated by the transmitter and affixed after the last data bit, but before the stop marks.</p> <p>The stop bit or bits depend in quantity upon the setting of the control word. If the transmission of 6,7, or 8 bits has been selected, the program may select either one or two stop bits. If the transmission of 5 bit code has been selected, the program may select either one or one and a half stop bits.</p> <p>If the transmitter's holding register has been loaded while a character was being transmitted, that second character will have its start bit commence immediately at the end of the preceding character's stop bit(s).</p> <p>3.5 The Auto-Echo Feature</p> <p>The DH11 contains provision for the hardware to echo received characters without software intervention. The feature may be enabled on any line by conditioning the line selection bits in the System Control Register and then setting the appropriate hits in the Line Parameter Register, including bit 15, Auto Echo Enable.</p>			
SIZE	CODE	NUMBER	REV
A	SP	DH11-0-5	B
DEC FORM NO DEC 16 (381)-1022-N370 DRA 108			
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TITLE DH11 Multiplexor			
<p>3.5 Continued-</p> <p>The auto-echo hardware is part of the receiver scanner and operates as follows:</p> <p>1) If the receiver scanner finds a received character for a line upon which auto-echo is NOT enabled, it simply dumps that character into the silo and resumes scanning.</p> <p>2) If the receiver scanner finds a received character for a line upon which auto-echo IS enabled, it examines the error flags associated with that character-</p> <p>a) If a framing error is detected, this means that the remote terminal is trying to gain the attention of the processor by sending a "break". In this case, the auto-echo hardware dumps the received character and associated flag into the silo so that the system software will be alerted. The break is not echoed to the remote terminal.</p> <p>b) If an overrun error is detected, this means that the remote terminal is trying to gain the attention of the processor by typing characters. This case is treated identically to 2a, above.</p> <p>3) If the receiver scanner finds a received character for a line (actually I should say "from a line") upon which auto-echo is enabled and there are no error flags of the type mentioned above, the receiver scanner and auto-echo logic will attempt to echo the character. First, however, certain tests of internal logic conditions must be made.</p> <p>a) The UART transmitters are all loaded from a common internal data bus. Therefore, the auto-echo hardware must first check to see that no NPR cycles are in progress loading a UART transmitter from that bus. If a conflict is indicated, the receiver scanner is restarted and the process will be tried again on the scanner's next rotation.</p> <p>b) If the above test indicates no problem, the one remaining check is to see if the transmitter holding register for the line upon which the character was received is available. If it is not, the scanner is restarted. If it is available, auto-echo commences.</p> <p>One should note that it is not advisable to try to transmit messages on a line and auto-echo characters received on that line simultaneously. This is not unreasonable, as you plainly</p>			
SIZE	CODE	NUMBER	REV
A	SP	DH11-0-5	B
DEC FORM NO DEC 16 (381)-1022-N370 DRA 108			
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TITLE DH11 Multiplexor			
<p>4.0 Multiplexor Distribution Panel and Power Supply</p> <p>4.1 The DH11 provides a panel for level converters and cables for the individual lines. The panel uses a standard H911 style rack, but only 6 connector blocks are used. A layout of the distribution panel and the various slot assignments is shown in the option bulletin and in the manual.</p> <p>Note that the slot assignments follow the DF11 (Standard level conversion and cable slot for PDP-11 Communications Products) format. Slots A06 through A21 are used for level conversion modules. Slots B06 through B21 are used for cable termination. Other slots provide inputs or special purpose outputs. The distribution panel mounts on a standard 19 inch cabinet and connects to the DH11 logic by means of a BC08-S data cable.</p> <p>4.2 Power for the distribution panel is provided by the H758* power supply mounted on the rear of the cabinet. The H758 provides the voltages listed below:</p> <p>+15 volts @ 2 amperes -15 volts @ 2 amperes + 5 volts @ 4 amperes</p> <p>Power drain of the distribution panel depends upon the type of level conversion used. The maximum draw on the +15 and -15 occurs when DF11-BB modems are used, at which time the full rated output of 2 amperes is used. The maximum +5 draw occurs when all lines are arranged for full modem control (4 DM11-DC options) - the current used is then 1.7 amperes.</p> <p>Note that the level conversion types can be mixed on a 4 line basis, by using different converters on slots A4, A5, B4, and B5. Also level converters can be mixed on a single line basis by using slot A6 through A21 for level conversion on a single line basis. Consult the module utilization diagram for the distribution panel for specific details.</p> <p>4.3 The DH11-AD and AE options use a 16 line EIA distribution panel. This panel requires no power of its own. It mounts on a standard 19 inch cabinet and connects to the DH11 logic by means of two BC08S data cables and four BC08R modem control cables.</p> <p>*Some units in the field may be observed with H739 or H751 supplies. These are generally equivalent to an H758 supply.</p>			
SIZE	CODE	NUMBER	REV
A	SP	DH11-0-5	B
DEC FORM NO DEC 16 (381)-1022-N370 DRA 108			
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TITLE DH11 Multiplexor			
<p>3.5 Continued-</p> <p>cannot receive characters on a line at 30 characters per second, echo them back by auto-echo at 30 characters per second, and transmit an independent message at 30 characters per second, all on the same line. The auto-echo hardware will interlock these functions to some degree, but if more than two characters are received on a line while the scanner is waiting for the transmitter holding buffer to become available (see 3b above), a data overrun will occur and characters will be lost. In short, auto-echo and software-driven transmission should not be attempted on the same line simultaneously if input from that line is expected.</p>			
SIZE	CODE	NUMBER	REV
A	SP	DH11-0-5	B
DEC FORM NO DEC 16 (381)-1022-N370 DRA 108			
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TITLE DH11 Multiplexor			
<p>5.0 Programming</p> <p>5.1 The System Control Register - 000</p> <p>The System Control Register is a byte-addressable register. The bit assignment is as follows:</p> <p>000, 001, 002, 003 Line Selection</p> <p>Each of the 16 lines served by the DH11 has its own storage for line parameter information, current address, and byte count. These storage locations are loaded by the program via the Line Parameter Register, Current Address Register, and Byte Count Register, but the hardware must first be told which line is to have its line parameters, current address, or byte count changed. This routing is accomplished by setting the Line Selection bits. These bits are read/write.</p> <p>004, 005 Memory Extension</p> <p>The information stored in these bits becomes bits 16 and 17 respectively of any current address loaded by the program into the Current Address Register. These bits are read/write, but when read represent only the status of bits 4 and 5 of the System Control Register, NOT the status of the 16th and 17th address bits of the selected line. See the Silo Status Register for further information. The reason for this arrangement is to permit interrupt service routines to save the contents of the System Control Register accurately.</p> <p>006 Receiver Interrupt Enable</p> <p>This bit, when set, enables receiver interrupts (bit 7).</p> <p>007 Receiver Interrupt</p> <p>This bit, when set, indicates that the number of characters stored in the silo exceeds the "alarm level" specified by the low byte of the Silo Status Register. This bit is read only, except in Maintenance Mode, when it is read/write. The setting of this bit will generate an interrupt if bit 006 (above) is also set.</p>			
SIZE	CODE	NUMBER	REV
A	SP	DH11-0-5	B
DEC FORM NO DEC 16-(381)-1022-N370 DRA 108			
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TITLE DH11 Multiplexor			
<p>5.1 Continued-</p> <p>008 Clear Non-Existant Memory Interrupt</p> <p>This bit, when set, clears the non-existent memory interrupt flip-flop (bit 10) and clears itself. This bit is read/write.</p> <p>009 Maintenance (Read/Write)</p> <p>This bit, when set, places the DH11 in Maintenance mode. Maintenance mode is described in Section 5.11.</p> <p>10 Non-existent Memory</p> <p>This bit is set whenever the NPR hardware within the DH11 addresses a memory location from which no slave sync is received within 20 microseconds. This indicates that the addressed location or device does not exist. This bit causes an interrupt if set while bit 13 (see below) is set. This bit is read only, unless in maintenance mode, at which time it is read/write.</p> <p>11 Master Clear</p> <p>This bit, when set, generates "Initialize" within the DH11, clearing the silo, the UARTs, and the registers. The exact bits cleared are discussed in Section 5.10 Initialize. This bit is read/write.</p> <p>12 Storage Interrupt Enable</p> <p>This bit, when set, permits the setting of bit 14 to generate an interrupt. This bit is read/write.</p> <p>13 Transmit and Non-Ex-Mem Interrupt Enable</p> <p>This bit, when set, permits the setting of bit 10 or 15 to generate an interrupt. This bit is read/write.</p> <p>14 Storage Interrupt</p> <p>This bit is set whenever the receiver scanner has found a receiver holding buffer with a character in it and desires to store that character in the silo but cannot do so at this time</p>			
SIZE	CODE	NUMBER	REV
A	SP	DH11-0-5	B
DEC FORM NO DEC 16-(381)-1022-N370 DRA 108			
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TITLE DH11 Multiplexor																	
<p>5.2 Continued-</p> <p>reader is referred to Section 5.9 for further details on double-buffered reception.</p> <p>15 Valid Data Present</p> <p>This bit indicates that the data presented in bits 14-000 is valid. This bit permits the use of a character handling program that takes characters from the silo until there are no more available. This is done by reading this register and checking bit 15 until one obtains a word for which bit 15 is zero.</p> <p>The entire Next Received Character Register is read-only and is addressable only on a word basis.</p> <p>5.3 Line Parameter Register 004</p> <p>This register should be loaded only after the System Control Register has had its line selection bits arranged to select the line to which these line parameters are to apply.</p> <p>This register is write-only.</p> <p>000 - 001 Character Length</p> <p>These bits should be set as shown to receive and transmit characters of the length (excluding parity) shown:</p> <table><tr><td>001</td><td>000</td></tr><tr><td>0</td><td>0</td><td>5 bit</td></tr><tr><td>0</td><td>1</td><td>6 bit</td></tr><tr><td>1</td><td>0</td><td>7 bit</td></tr><tr><td>1</td><td>1</td><td>8 bit</td></tr></table> <p>002 Two Stop Bits</p> <p>This bit, when set, conditions a line transmitting with 6,7, or 8 bit code to transmit characters having two stop marks. If the line is transmitting 5 bit code, assertion of this bit causes the characters to be transmitted with 1.5 stop marks. If this bit is not asserted, 1 stop mark is sent.</p>				001	000	0	0	5 bit	0	1	6 bit	1	0	7 bit	1	1	8 bit
001	000																
0	0	5 bit															
0	1	6 bit															
1	0	7 bit															
1	1	8 bit															
SIZE	CODE	NUMBER	REV														
A	SP	DH11-0-5	B														
DEC FORM NO DEC 16-(381)-1022-N370 DRA 108																	
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TITLE DH11 Multiplexor			
<p>5.1 Continued-</p> <p>because of a lack of space. This bit when set will cause an interrupt if bit 12 is set. This bit is read only, except in Maintenance Mode, at which time it is read/write.</p> <p>15 Transmitter Interrupt</p> <p>This bit is set whenever the DH11 concludes an NPR cycle that incremented a byte count to zero, indicating the loading of the last character in a message buffer into a UART transmitter holding register. This bit when set will cause an interrupt if bit 13 is set. This bit is read/write. (It is set during an NPR cycle)</p> <p>5.2 Next Received Character Register 002</p> <p>000 - 007 These bits contain the next received character, right justified. The least significant bit is in bit 000. Unused bits are 0. The parity bit is not shown.</p> <p>008 - 011 These bits contain the line number upon which the aforementioned character was received. Bit 8 is the least significant.</p> <p>12 Parity Error</p> <p>This bit is set if the sense of the parity of the received character does not agree with that designated for that line.</p> <p>13 Framing Error</p> <p>This bit is set if the received character did not have a stop bit present at the proper time. This bit is usually interpreted as indicating the reception of a "break".</p> <p>14 Data Overrun</p> <p>This bit is set if the received character was preceded by a character that was lost due to the inability of the receiver scanner to service the UART receiver holding buffer. The</p>			
SIZE	CODE	NUMBER	REV
A	SP	DH11-0-5	B
DEC FORM NO DEC 16-(381)-1022-N370 DRA 108			
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TITLE DH11 Multiplexor					
5.3 Continued-					
Ø3	Reserved (Not used)				
Ø4	Parity Enabled				
If this bit is set, characters transmitted on this line will have an appropriate parity bit affixed and characters received on this line will be have their parity checked.					
Ø5	Even Parity				
If this bit is set and bit 4 is set, characters of even parity will be generated on this line and incoming characters will be expected to have even parity. If this bit is nnt set, but bit 4 is set, characters of odd parity will be generated on this line and incoming characters will be expected to have odd parity. If bit 4 is not set, the setting of this bit is immaterial.					
Ø6 - Ø9	Receiver Speed				
The state of these bits determines the operating speed for this line's receiver. The speed table below is applicable.					
1Ø - 13	Transmitter Speed				
The state of these bits determines the operating speed for this line's transmitter. The speed table below is applicable.					
Speed Table for Receiver and Transmitter Speeds:					
Bit	9	8	7	6	
	13	12	11	1Ø	
	Ø	Ø	Ø	Ø	Zero Baud (See 5.9)
	Ø	Ø	Ø	1	50 baud
	Ø	Ø	1	Ø	75 baud
	Ø	Ø	1	1	110 baud
	Ø	1	Ø	Ø	134.5 baud
	Ø	1	Ø	1	150 baud
	Ø	1	1	Ø	200 baud
	Ø	1	1	1	300 baud
SIZE		CODE	NUMBER		REV
A		SP	DH11-Ø-5		B

ENGINEERING SPECIFICATION		CONTINUATION SHEET			
TITLE DH11 Multiplexor					
5.3 Cnntinued-					
Speed Table for Receiver and Transmitter Speeds (Continued):					
Bit	9	8	7	6	
	13	12	11	1Ø	
	1	Ø	Ø	Ø	600 baud
	1	Ø	Ø	1	1200 baud
	1	Ø	1	Ø	1800 baud
	1	Ø	1	1	2400 baud
	1	1	Ø	Ø	4800 baud
	1	1	Ø	1	9600 baud
	1	1	1	Ø	External Input A
	1	1	1	1	External Input B
14	Half-Duplex/Full-Duplex				
If this bit is set, this line is conditioned to operate in half-duplex mode. If this bit is clear, this line is conditioned to operate in full-duplex mode.					
In this application "half-duplex" means that the DH11 receiver is blinded during transmission of a character.					
15	Auto-Echo Enable				
When this bit is set, characters received on this line will be hardware echoed. See Section 3.5 for further details.					
5.4 Current Address Register Ø6					
This register should be loaded only after the System Control Register has had the appropriate bits set to select the line number to which this current address is to apply. When this register is loaded, address bits ØØ-15 are transferred into semiconductor memories in the DH11 from bits ØØ-15 respectively of this register. Address bits 16-17 are transferred into semiconductor memories in the DH11 from bits 4-5 of the System Control Register.					
When this register is read, it will indicate the current address of the line selected by the System Control Register. Bits 16 and 17 will appear in the Silo Status Register.					
SIZE		CODE	NUMBER		REV
A		SP	DH11-Ø-5		B

ENGINEERING SPECIFICATION		CONTINUATION SHEET			
TITLE DH11 Multiplexor					
5.8 Silo Status Register 16					
This register is actually two byte-sized registers. The bit assignments are:					
ØØ - Ø5	Silo Alarm Level				
The program writes a number 0,1,2,4,8,16,or 32 into this location. When the number of characters stored in the silo exceeds that number, an interrupt (System Control Register bit 7)is generated, if enabled (System Cnntrol Register bit 6 is 1). These bits are read/write.					
Ø6 - Ø7	Read Extended Memory				
These bits are read only and contain the A16 and A17 bits of the current address for the line to which the line selection bits of the System Control Register are pointing.					
Ø8 - 13	Silo Fill Level				
These bits represent an up-down counter that indicates the actual number of characters in the silo. It should be noted that there are six binary digits; hence numbers between 0 and 63 ₁₀ can be represented. A full silo has 64 ₁₀ entries and appears as ØØØØØØ, but one may easily tell the difference between an empty silo (ØØØØØØ) and a full silo (ØØØØØØ) by checking the Storage Overflow bit (bit 14 of System Control). These bits are read-only.					
14	Reserved (Not used; this bit is read/write).				
15	Silo Maintenance (See Section 5.11)				
SIZE		CODE	NUMBER		REV
A		SP	DH11-Ø-5		B

ENGINEERING SPECIFICATION		CONTINUATION SHEET			
TITLE DH11 Multiplexor					
5.5 Byte Count Register 1Ø					
In the same fashion as the Line Parameter and Current Address registers, this register should not be loaded or read without first selecting a line number by means of the lower-order four bits of the System Control Register. This register should be loaded with the two's complement*of the number of characters (bytes) to be transmitted on that line. The byte count register is read/write.					
5.6 Buffer Active Register 12					
This register contains one bit for each line. The bits are to be individually set using B1S instructions. Setting a bit initiates transmission on the assnciated line. The bit is cleared by the hardware when the last character to be transmitted on that line is loaded into the transmitter data hndling register of the UART for that line. It should be noted that while the clearing nf a BAR bit does indicate that a new message may be sent, it does not indicate that the last characters from the preceding message have been completely sent. Specifically, two more characters will be sent after the BAR bit clears. These are the last two characters of the message; one of them was just starting when the BAR was cleared and one was that final character that was loaded into the holding register, thus clearing the BAR bit. This effect is a normal consequence of double-buffered transmission and is mentioned here fnr the benefit of programmers who want to write programs that control such modem leads as Request to Send. Clearly, Request to Send should not be dropped until at least two character time after the BAR bit for a given line clears.					
Clearing a BAR bit shuld not be used to abort transmission on a line. Rather, the byte count for that line should be set to zero. The Buffer Active Register (BAR) bits are read/write.					
5.7 Break Control Register 14					
This register contains one bit for each line. Setting a bit in this register will immediately generate a break condition nh the line corresponding to that bit number. Clearing the bit will terminate the break condition. The break condition may be timed by sending characters during the break interval, since these characters will never actually reach the line. Further comments concerning the transmission of break signals may be found in Sectinn 5.9					
*To determine the two's complement, write the number out in binary, complement each bit to obtain the "complement" and then add 1 to get "two's complement".					
SIZE		CODE	NUMBER		REV
A		SP	DH11-Ø-5		B

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TITLE DH11 Multiplexor			
<p>5.9 Programming - Discussion</p> <p><u>Double Buffered Receivers</u> - General</p> <p>"Double-buffered" receivers contain two registers, one of which is a shift register into which the character being received from the communications line is shifted a bit at a time. The second register is a holding register; when the shift register has assembled a complete character, that character is transferred in a parallel fashion into the holding register. At that time a flag is set and the hardware or software of the system using the double-buffered receiver can access the holding register and remove/copy the data stored there. When the shift register has assembled another character, that character will be transferred into the holding register, obliterating the character previously stored there. If this action takes place before the data in the holding register has been accessed by the aforementioned hardware/software, a "data overrun" flag will be set, indicating that data was lost.</p> <p><u>Double Buffered Receivers</u> - DH11</p> <p>The Universal Asynchronous Receiver Transmitters (UARTs) used in the DH11 are MOS/LSI units that each contain a double buffered receiver and a double buffered transmitter. The double buffered receivers found in DH11 UARTs function exactly as described above. In the DH11, the flags indicating presence of data in the holding registers of the double-buffered UART receivers are scanned by an automatic hardware scanner which copies data from holding registers into the "silo" if and only if storage space is available in the silo. If that space is not available, and the scanner finds a flag indicating a holding register with data in it, the "Storage Overflow" bit (System Control Register, bit 14) is set, and an interrupt is generated, if enabled. As indicated in Section 2.9.1.2, the setting of this bit does not necessarily mean that data has been lost. Rather, it indicates that data will be lost if the hardware scanner is unable to service (i.e. dump into the silo) the data in one or more holding registers before additional characters arrive on those lines. Actual data loss will become evident to the program when characters are received with the "Data Overrun" bit set. (See the description of the "Next Received Character Register".)</p>			
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ENGINEERING SPECIFICATION		CONTINUATION SHEET	
TITLE DH11 Multiplexor			
<p>5.9 Continued-</p> <p><u>Silo</u></p> <p>The silo, actually more similar in design to a grainery, is a first-in first-out buffer store. A parallel - loaded 16 bit word (see Next Received Character Register for the format) automatically propagates "downward" into the first location not already containing a word. In the case where the silo is empty, this means that the word would propagate directly into the Next Received Character Register. The propagation time from the top of the silo to the bottom may be as much as 32 microseconds. For this reason, the hardware is arranged such that the Receiver Interrupt is not generated until the number of characters in the silo exceeds the "silo alarm level" AND there is at least one character in the bottom of the silo. This arrangement is necessary because the up-down counter that indicates the number of characters in the silo indicates exactly that, the number of characters in the silo, both those resting in the bottom and those propagating downward. While the hardware arrangement protects the case where the silo is empty and the alarm level is zero (if the "AND there is at least one character in the bottom of the silo" was not made a condition in the interrupt generation, the program would receive an interrupt while the single character in the silo was propagating downward), the fact still remains that the number of characters IN the silo and the number actually available to be serviced may differ due to the propagation time. For this reason, character handling programs should not assume there are some particular number of characters in the silo when servicing begins. Rather, the program should extract a character, check the "valid data present" bit (bit 15) and handle the character; then the program should extract the next character and repeat the process until bit 15 no longer tests as "1". At that time, the silo may be assumed to be empty (although there may be another character propagating downward) and the character handling routine may be terminated until another Receiver Interrupt is received.</p> <p>On very fast processors, such as the PDP-11/45, the program should avoid reading the Next Received Character Register more often than once per microsecond, as it takes one microsecond for characters in the silo to shift downward one position. Since the typical program will be checking bit 15 and moving the character to some location, it is anticipated that this speed requirement will not pose a problem.</p>			
SIZE A	CODE SP	NUMBER DH11-0-5	REV B
DEC FORM NO DEC 16--(381)--1022-N370 DRA 108			
SHEET 22 OF 25			

ENGINEERING SPECIFICATION		CONTINUATION SHEET	
TITLE DH11 Multiplexor			
<p>5.10 Addresses and Vectors</p> <p>The DH11 uses floating addresses and is located after DJ11's in the floating address space that begins at location 160010. Because the DH11 has eight registers, it must be assigned an address that is a multiple of 20 (octal). All DH11's in a system should have consecutive addresses.</p> <p><u>Example #1:</u> A system with no DJ11's, but two DH11's:</p> <p>160010 Cannot use for DH11's because not multiple of 20. 160020 First DH11 160040 Second DH11 160060 DH11 Gap (Indicates that there are no more DH11's).</p> <p><u>Example #2:</u> A system with one DJ11, two DH11's:</p> <p>160010 First DJ11 160020 DJ11 Gap (Indicates that there are no more DJ11's). 160040 Cannot use for DH11's because not multiple of 20. 160040 First DH11 160060 Second DH11 160100 DH11 Gap (Indicates that there are no more DH11's).</p> <p>The DH11 vectors (2) follow those of the DJ11 in the floating vector space that starts at address 000. The vectors starting at 300 are used in the following order: DC11; KL11/DL11-A,B; DP11; DM11-A; DN11; DM11-BB; DR11-A; DR11-C; PA611 Readers; PA611 Punches; DT11; DX11; DL11-C,D,E; DJ11; DH11.</p> <p>Of the two DH11 vectors, the receiver vector is the lower numbered vector. The priority of the receiver and transmitter interrupts are individually selectable by means of two standard PDP11 priority jumper plugs.</p> <p>INITIALIZE</p> <p>The Initialize signal clears the Silo, the UARTs, and all registers except the Current Addresses and Byte Counts. All scanners are forced to line 00 but continue operation from there.</p>			
SIZE A	CODE SP	NUMBER DH11-0-5	REV B
DEC FORM NO DEC 16--(381)--1022-N370 DRA 108			
SHEET 24 OF 25			

ENGINEERING SPECIFICATION		CONTINUATION SHEET	
TITLE DH11 Multiplexor			
<p>5.9 Continued-</p> <p><u>Zero Baud</u></p> <p>A speed selection of "zero baud" is provided so that the program may turn off any line. This would be useful should excessive circuit noise on an unused line cause the receipt of annoying quantities of bogus characters.</p> <p><u>BREAK Signals</u></p> <p>When the Break Control Register has been conditioned to transmit a break signal on a particular line, DH11 logic immediately forces the output on that line to the SPACE (0) condition.</p> <p>As indicated in Section 5.6, the generation of a Transmitter Interrupt occurs when the last character of a message has been loaded into a UART transmitter from a message table in PDP-11 core. It is thus appropriate at that time for the program to set up a new message in core and to load the appropriate current address and byte count so that the new message can begin when the old one is finished.</p> <p>It is important to note that the former message is not "finished" when the Transmitter Interrupt is given. Rather, the use of the core table is finished. In terms of the actual serial communications line, there are two more characters left to go. One of these characters is in the UART transmitter's shift register; the other is in the UART transmitter's holding register.</p> <p>The consequence of the above is that to send a break signal, one should load two nulls and wait for a transmitter interrupt before setting the appropriate bit in the Break Control Register. In this way, generation of a break will not interrupt the transmission of any printing characters. In like manner, when using characters to time the transmission of a break signal, nulls should be used so that when the break condition is terminated by clearing the bit in the Break Control Register, no printing characters will be produced from the UART shift and holding registers.</p>			
SIZE A	CODE SP	NUMBER DH11-0-5	REV B
DEC FORM NO DEC 16--(381)--1022-N370 DRA 108			
SHEET 23 OF 25			

ENGINEERING SPECIFICATION		CONTINUATION SHEET	
TITLE DH11 Multiplexor			
<p>5.10 Maintenance Bits and Their Function</p> <p>Setting of SCR 09 (Maintenance) does the following:</p> <p>1) It enables the ability of the program to write SCR 07 (Receiver Interrupt), SCR 10 (Non-Existant Memory Interrupt), and SCR 14 (Storage Overflow Interrupt) bits. This write capability is normally not enabled as it can produce hardware/software synchronization problems unless carefully done.</p> <p>2) It loops the transmitted data leads (serial out line 00-15) to the received data leads (serial in line 00-15).</p> <p>Setting of SSR 15 (Silo Maintenance) causes the inputs of the silo to be set to a 10101010101010 bit pattern, and a single 16-bit character made up of this pattern to be loaded into the silo. Successive clears and sets of SSR 15 will repeat this procedure. All receiver speeds should be set to zero baud and the silo emptied before this is done, so that no data from the incoming serial lines will be placed in the silo while it is under test.</p>			
		SIZE A	CODE SP
		NUMBER DH11-0-5	REV B

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DIGITAL EQUIPMENT CORPORATION

FIRST USED ON OPTION MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP 11		PARTS LIST		
DRN. <i>P. Smith</i>		DATE <i>1-4-73</i>	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
CHK'D. <i>J. J. ...</i>		DATE <i>1-4-73</i>		
ENG. <i>J. J. ...</i>		DATE <i>1-4-73</i>		
PROJ. ENG. <i>J. J. ...</i>		DATE <i>1-4-73</i>		
PROD. <i>J. J. ...</i>		DATE <i>1-1-73</i>		
NEXT HIGHER ASSEMBLY		TITLE		
D-1A-7009180-0-0		WIRE LIST		
SCALE <i>1-1-1</i>		SIZE CODE	NUMBER	REV.
SHEET <i>1</i> OF <i>1</i>		K WL	DH11-0-2	C
		DIST.		

DH11.C RUN NAME	A/P	WRP200.V34(62)-1		31-JUL-75		DRAW	RV	RG	Y	X	Z	REMARKS	12-JUL-76		PAGE 1		RUN NUMBER
		PIN NAME	ORDER PIN	SAY * ORDER	Q								NC	LENGTH	EXCEPTIONS		
+SV 1	H	A07B1		1-01 *	1						1		N	3-1/8			1
+SV 1	H	A03V2		1-02 *							2		N	6-7/8			1
+SV 1	H	C01U1		1-03 *													1
+SV 1	H			1										10-0/8			1
+SV 2	H	C02U1		1-01 *	1						1		N	6-3/8			2
+SV 2	H	A03U2		1-02 *													2
+SV 2	H			1										6-3/8			2
+SV 1	L	A07B2		1-01 *	1						1		N	6-5/8			3
+SV 1	L	C09B2		1-02 *							2		N	4			3
+SV 1	L	C02B2		1-03 *							1		N	1			3
+SV 1	L	C01B2		1-04 *													3
+SV 1	L			1										11-5/8			3
+SV 2	L	D01B2		1-01 *	2						2		N	1			4
+SV 2	L	D02B2		1-02 *							1		N	4			4
+SV 2	L	D09B2		1-03 *													4
+SV 2	L			1										5-0/8			4
100 BAUD	H	F09T2				D06									1-PIN RUN		5
110 BAUD	H	F00H1		1-01 *		D05- 3					1		N	1			6
110 BAUD	H	F09H1		1-02 *		D06											6
110 BAUD	H			1										1-0/8			6
1200 BAUD	H	F00J1		1-01 *		D05- 3					1		N	1			7
1200 BAUD	H	F09J1		1-02 *		D06											7
1200 BAUD	H			1										1-0/8			7
134.5 BAUD	H	F00V2		1-01 *		D05- 3					1		N	1			8
134.5 BAUD	H	F09V2		1-02 *		D06											8
134.5 BAUD	H			1										1-0/8			8
150 BAUD	H	F00K1		1-01 *		D05- 3					1		N	1			9
150 BAUD	H	F09K1		1-02 *		D06											9
150 BAUD	H			1										1-0/8			9
1000 BAUD	H	F00U2		1-01 *		D05- 3					1		N	1			10
1000 BAUD	H	F09U2		1-02 *		D06											10
1000 BAUD	H			1										1-0/8			10
2.53 MHZ	H	F00E1		1-01 *		D11- 1					1		N	2-4/8			11
2.53 MHZ	H	F09E1		1-02 *		D06											11
2.53 MHZ	H			1										2-4/8			11
200 BAUD	H	F00R1		1-01 *		D05- 3					1		N	1			12
200 BAUD	H	F09R1		1-02 *		D06											12
200 BAUD	H			1										1-0/8			12
2400 BAUD	H	F00D1		1-01 *		D05- 3					1		N	1			13
2400 BAUD	H	F09D1		1-02 *		D06											13
2400 BAUD	H			1										1-0/8			13

DH11.C RUN NAME	WRP200.V34(62)-1 31-Jul-75										12-Jul-76		16136 PAGE 4			RUN NUMBER
	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC FLAG	LENGTH	EXCEPTIONS	
AE GO	L	C0482		1-01 *		D13- 1					1		N	5-1/8		43
AE GO	L	E05K1		1-02 *		D11- 1										43
AE GO	L			1										5-1/8		43
AE STROBE	H	A05N2		1-01 *		D11- 1					1		N	8-7/8		44
AE STROBE	H	D03E1		1-02 *		D12- 1										44
AE STROBE	H			1										8-7/8		44
B INTR DONE	H	A06M2		1-01 *		D07					1		N	1		45
B INTR DONE	H	A06B1		1-02 *		D07										45
B INTR DONE	H			1										1-0/8		45
B START INTR	L	A06P2		1-01 *		D07					1		N	0-4/8		46
B START INTR	L	A06S2		1-02 *		D07										46
B START INTR	L			1										0-4/8		46
BAR 00	H	D03K1		1-01 *		D12- 2					1		N	3-5/8		47
BAR 00	H	E04K2		1-02 *		D13- 1										47
BAR 00	H			1										3-5/8		47
BAR 01	H	E03F2		1-01 *		D12- 2					1		N	1-3/8		48
BAR 01	H	E04N1		1-02 *		D13- 1										48
BAR 01	H			1										1-3/8		48
BAR 02	H	E04S1		1-01 *		D13- 1					1		N	2-3/8		49
BAR 02	H	F03E1		1-02 *		D17- 2										49
BAR 02	H			1										2-3/8		49
BAR 03	H	E03V2		1-01 *		D12- 2					1		N	1		50
BAR 03	H	E04V2		1-02 *		D13- 1										50
BAR 03	H			1										1-0/8		50
BAR 04	H	D03E2		1-01 *		D12- 2					1		N	7-5/8		51
BAR 04	H	F04T2		1-02 *		D13- 1										51
BAR 04	H			1										7-5/8		51
BAR 05	H	C0481		1-01 *		D13- 1					1		N	4-5/8		52
BAR 05	H	E03E2		1-02 *		D12- 2										52
BAR 05	H			1										4-5/8		52
BAR 06	H	E03P2		1-01 *		D12- 2					1		N	2-7/8		53
BAR 06	H	F04J1		1-02 *		D13- 1										53
BAR 06	H			1										2-7/8		53
BAR 07	H	F03A1		1-01 *		D12- 2					1		N	1-3/8		54
BAR 07	H	F04E2		1-02 *		D13- 1										54
BAR 07	H			1										1-3/8		54
BAR 08	H	C03R1		1-01 *		D12- 3					1		N	5-3/8		55
BAR 08	H	E04K1		1-02 *		D13- 1										55
BAR 08	H			1										5-3/8		55
BAR 09	H	C03R1		1-01 *		D12- 3					1		N	7-1/8		56
BAR 09	H	E04M1		1-02 *		D13- 1										56
BAR 09	H			1										7-1/8		56

DH11.C RUN NAME	A/P	WRP200.V34(62)-1 31-Jul-75										REMARKS	12-Jul-76			16136 NC LENGTH EXCEPTIONS FLAG	PAGE 5	RUN NUMBER
		PIN NAME	OPREP PIN	PAY - ORDER	Q	DPAW OPT	RV	PG	Y	X	Z							
BAR 10	H	B03N1		1-01 *		D12- 3					1		N	9-1/8		57		
BAR 10	H	E0482		1-02 *		D13- 1										57		
BAR 10	H			1										9-1/8		57		
BAR 11	H	A03V1		1-01 *		D12- 3					1		N	11-1/8		58		
BAR 11	H	E04U1		1-02 *		D13- 1										58		
BAR 11	H			1										11-1/8		58		
BAR 12	H	B03E1		1-01 *		D12- 3					1		N	11-3/8		59		
BAR 12	H	F04E1		1-02 *		D13- 1										59		
BAR 12	H			1										11-3/8		59		
BAR 13	H	B03R1		1-01 *		D12- 3					1		N	10-5/8		60		
BAR 13	H	F04H2		1-02 *		D13- 1										60		
BAR 13	H			1										10-5/8		60		
BAR 14	H	C03H1		1-01 *		D12- 3					1		N	9-7/8		61		
BAR 14	H	F04P2		1-02 *		D13- 1										61		
BAR 14	H			1										9-7/8		61		
BAR 15	H	C03S1		1-01 *		D12- 3					1		N	8-7/8		62		
BAR 15	H	F0481		1-02 *		D13- 1										62		
BAR 15	H			1										8-7/8		62		
BC MEM WRITE ENAB	L	B03T2		1-01 *		D12- 1					1		N	7-1/8		63		
BC MEM WRITE ENAB	L	E04H1		1-02 *		D13- 2										63		
BC MEM WRITE ENAB	L			1										7-1/8		63		
BG 4 AB	H	A07S1		1-01 *		D08					1		N	0-5/8		64		
BG 4 AB	H	A07T2		1-02 *		D08										64		
BG 4 AB	H			1										0-5/8		64		
BG 4 BC	H	A07C1		1-01 *		D08					1		N	13-7/8		65		
BG 4 BC	H	E02L2		1-02 *		D09					2		N	3-3/8		65		
BG 4 BC	H	F01E1		1-03 *		D08										65		
BG 4 BC	H			1										17-2/8		65		
BG 4 IN A	H	A07S2		1-01 *		D08					1		N	4-7/8		66		
BG 4 IN A	H	B01E2		1-02 *		D08										66		
BG 4 IN A	H			1										4-7/8		66		
BG 4 OUT C	H	B09E2		1-01 *		D08					1		N	12-1/8		67		
BG 4 OUT C	H	E02K2		1-02 *		D09					2		N	2-7/8		67		
BG 4 OUT C	H	F01A1		1-03 *		D08										67		
BG 4 OUT C	H			1										15-0/8		67		
BG 5 AB	H	A07P1		1-01 *		D08					1		N	0-5/8		68		
BG 5 AB	H	A07R2		1-02 *		D08										68		
BG 5 AB	H			1										0-5/8		68		
BG 5 IN A	H	A07P2		1-01 *		D08					1		N	4-7/8		69		
BG 5 IN A	H	B01B1		1-02 *		D08										69		
BG 5 IN A	H			1										4-7/8		69		

DH11.C		MRP200.V34(62)-1				31-Jul-75		12-Jul-76				16136		PAGE 8		RUN NUMBER
RUN NAME		A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC FLAG	LENGTH EXCEPTIONS	
BUF DATA 08	H		B03K1		1-01 *		D12- 1					2		N	1-3/8	93
BUF DATA 08	H		B04D1		1-02 *		D13- 2					1		N	10-3/8	93
BUF DATA 08	H		E05V1		1-03 *		D11- 2									93
BUF DATA 08	H				1										11-6/8	93
BUF DATA 09	H		A04T2		1-01 *		D13- 7					2		N	2-3/8	94
BUF DATA 09	H		B03F2		1-02 *		D12- 1					1		N	12-3/8	94
BUF DATA 09	H		F05M2		1-03 *		D11- 2									94
BUF DATA 09	H				1										14-6/8	94
BUF DATA 10	H		A03M1		1-01 *		D12- 1					1		N	0-1/8	95
BUF DATA 10	H		D04E1		1-02 *		D13- 2					2		N	4-5/8	95
BUF DATA 10	H		E05S1		1-03 *		D11- 2									95
BUF DATA 10	H				1										12-6/8	95
BUF DATA 11	H		A03A1		1-01 *		D12- 1					2		N	3-7/8	96
BUF DATA 11	H		B04C1		1-02 *		D13- 2					1		N	12-5/8	96
BUF DATA 11	H		F05L2		1-03 *		D11- 2									96
BUF DATA 11	H				1										16-4/8	96
BUF DATA 12	H		C04D1		1-01 *		D13- 2					2		N	2-1/8	97
BUF DATA 12	H		C03T2		1-02 *		D12- 1					1		N	7-7/8	97
BUF DATA 12	H		F05E2		1-03 *		D11- 2									97
BUF DATA 12	H				1										10-0/8	97
BUF DATA 13	H		B04E1		1-01 *		D13- 2					2		N	1-5/8	98
BUF DATA 13	H		B03R2		1-02 *		D12- 1					1		N	10-7/8	98
BUF DATA 13	H		F05F2		1-03 *		D11- 2									98
BUF DATA 13	H				1										12-4/8	98
BUF DATA 14	H		A03P2		1-01 *		D12- 1					2		N	5-3/8	99
BUF DATA 14	H		C04F2		1-02 *		D13- 2					1		N	0-7/8	99
BUF DATA 14	H		F05J1		1-03 *		D11- 2									99
BUF DATA 14	H				1										14-2/8	99
BUF DATA 15	H		A03P1		1-01 *		D12- 1					2		N	4-7/8	100
BUF DATA 15	H		C04C1		1-02 *		D13- 2					1		N	10-5/8	100
BUF DATA 15	H		F05S2		1-03 *		D11- 2									100
BUF DATA 15	H				1										15-4/8	100
BUS A00	L		B09H2		1-01 *		D10					1		N	3	101
BUS A00	L		B04H2		1-02 *		D13- 2					2		N	2	101
BUS A00	L		B01H2		1-03 *		D09					1		N	0-2/8	101
BUS A00	L		E01H2		1-04 *		D09									101
BUS A00	L				1										13-2/8	101
BUS A01	L		B09H1		1-01 *		D10					1		N	3	102
BUS A01	L		B04H1		1-02 *		D13- 2					2		N	2	102
BUS A01	L		B01H1		1-03 *		D09					1		N	0-2/8	102
BUS A01	L		E01H1		1-04 *		D09									102
BUS A01	L				1										13-2/8	102

DH11.C		MRP200.V34(62)-1				31-Jul-75		12-Jul-76				16136		PAGE 9		RUN NUMBER	
RUN NAME		A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC FLAG	LENGTH		EXCEPTIONS
BUS	A02	L	B09J2		1-01 *		D10					1		N	3		103
BUS	A02	L	B04J2		1-02 *		D13- 2					2		N	2		103
BUS	A02	L	B01J2		1-03 *		D09					1		N	0-1/8		103
BUS	A02	L	E01F1		1-04 *		D09										103
BUS	A02	L			1										13-1/8		103
BUS	A03	L	B09J1		1-01 *		D10					1		N	3		104
BUS	A03	L	B04J1		1-02 *		D13- 2					2		N	2		104
BUS	A03	L	B01J1		1-03 *		D09					1		N	9-5/8		104
BUS	A03	L	E01V2		1-04 *		D09										104
BUS	A03	L			1										14-5/8		104
BUS	A04	L	B09K2		1-01 *		D10					1		N	3		105
BUS	A04	L	B04K2		1-02 *		D13- 2					2		N	2		105
BUS	A04	L	B01K2		1-03 *		D09					1		N	9-2/8		105
BUS	A04	L	E01U2		1-04 *		D09										105
BUS	A04	L			1										14-2/8		105
BUS	A05	L	B09K1		1-01 *		D10					1		N	3		106
BUS	A05	L	B04K1		1-02 *		D13- 2					2		N	2		106
BUS	A05	L	B01K1		1-03 *		D09					1		N	9-3/8		106
BUS	A05	L	E01V1		1-04 *		D09										106
BUS	A05	L			1										14-3/8		106
BUS	A06	L	B09L2		1-01 *		D10					1		N	3		107
BUS	A06	L	B04L2		1-02 *		D13- 2					2		N	2		107
BUS	A06	L	B01L2		1-03 *		D09					1		N	9-3/8		107
BUS	A06	L	E01U1		1-04 *		D09										107
BUS	A06	L			1										14-3/8		107
BUS	A07	L	B09L1		1-01 *		D10					1		N	3		108
BUS	A07	L	B04L1		1-02 *		D13- 2					2		N	2		108
BUS	A07	L	B01L1		1-03 *		D09					1		N	0-5/8		108
BUS	A07	L	E01P2		1-04 *		D09										108
BUS	A07	L			1										13-5/8		108
BUS	A08	L	B09M2		1-01 *		D10					1		N	3		109
BUS	A08	L	B04M2		1-02 *		D13- 2					2		N	2		109
BUS	A08	L	B01M2		1-03 *		D09					1		N	0-3/8		109
BUS	A08	L	E01N2		1-04 *		D09										109
BUS	A08	L			1										13-3/8		109
BUS	A09	L	B09M1		1-01 *		D10					1		N	3		110
BUS	A09	L	B04M1		1-02 *		D13- 2					2		N	2		110
BUS	A09	L	B01M1		1-03 *		D09					1		N	0-5/8		110
BUS	A09	L	E01R1		1-04 *		D09										110
BUS	A09	L			1										13-5/8		110
BUS	A10	L	B09N2		1-01 *		D10					1		N	3		111
BUS	A10	L	B04N2		1-02 *		D13- 2					2		N	2		111
BUS	A10	L	B01N2		1-03 *		D09					1		N	0-5/8		111
BUS	A10	L	E01P1		1-04 *		D09										111
BUS	A10	L			1										13-5/8		111

DH11.C RUN NAME	A/P	WRP200.V34(62)-1		31-JUL-75		DRAW OPT	RV	RG	Y	X	Z	REMARKS	12-JUL-76	16136 NC FLAG	PAGE 12		RUN NUMBER
		PIN NAME	ORDER PIN	BAY - ORDER	Q										LENGTH	EXCEPTIONS	
SUB DATA 05	L	A09F2		1-01 *		D10					2			N	2-2/8		128
SUB DATA 05	L	A06F1		1-02 *		D07					1			N	1-6/8		128
SUB DATA 05	L	A03F2		1-03 *		D12- 2					2			N	1-4/8		128
SUB DATA 05	L	A01F2		1-04 *		D09					1			N	12-5/8		128
SUB DATA 05	L	E02V1		1-05 *		D09					2			N	2-1/8		128
SUB DATA 05	L	F01F1		1-06 *		D09											128
SUB DATA 05	L			1											20-2/8		128
SUB DATA 06	L	A09F1		1-01 *		D10					2			N	1-6/8		129
SUB DATA 06	L	A06F2		1-02 *		D07					1			N	2-2/8		129
SUB DATA 06	L	A03F1		1-03 *		D12- 2					2			N	1-4/8		129
SUB DATA 06	L	A01F1		1-04 *		D09					1			N	13-3/8		129
SUB DATA 06	L	F02A1		1-05 *		D09					2			N	1-1/8		129
SUB DATA 06	L	F01F2		1-06 *		D09											129
SUB DATA 06	L			1											20-0/8		129
SUB DATA 07	L	A09H2		1-01 *		D10					2			N	2-2/8		130
SUB DATA 07	L	A06H1		1-02 *		D07					1			N	1-6/8		130
SUB DATA 07	L	A03H2		1-03 *		D12- 2					2			N	1-4/8		130
SUB DATA 07	L	A01H2		1-04 *		D09					1			N	12-1/8		130
SUB DATA 07	L	E02R1		1-05 *		D09					2			N	2-7/8		130
SUB DATA 07	L	F01H1		1-06 *		D09											130
SUB DATA 07	L			1											20-4/8		130
SUB DATA 08	L	A09H1		1-01 *		D10					2			N	2-1/8		131
SUB DATA 08	L	A06K1		1-02 *		D07					1			N	2-1/8		131
SUB DATA 08	L	A03H1		1-03 *		D12- 3					2			N	1-4/8		131
SUB DATA 08	L	A01H1		1-04 *		D09					1			N	13-7/8		131
SUB DATA 08	L	F02E1		1-05 *		D09					2			N	1-1/8		131
SUB DATA 08	L	F01K1		1-06 *		D09											131
SUB DATA 08	L			1											20-6/8		131
SUB DATA 09	L	A09J2		1-01 *		D10					1			N	3-4/8		132
SUB DATA 09	L	A03J2		1-02 *		D12- 1					2			N	1-4/8		132
SUB DATA 09	L	A01J2		1-03 *		D09					1			N	12-5/8		132
SUB DATA 09	L	E02V2		1-04 *		D09											132
SUB DATA 09	L			1											17-5/8		132
SUB DATA 10	L	A09J1		1-01 *		D10					1			N	3-4/8		133
SUB DATA 10	L	A03J1		1-02 *		D12- 1					2			N	1-4/8		133
SUB DATA 10	L	A01J1		1-03 *		D09					1			N	13-7/8		133
SUB DATA 10	L	F02F1		1-04 *		D09											133
SUB DATA 10	L			1											10-7/8		133
SUB DATA 11	L	A09K2		1-01 *		D10					1			N	3-4/8		134
SUB DATA 11	L	A03K2		1-02 *		D12- 1					2			N	1-4/8		134
SUB DATA 11	L	A01K2		1-03 *		D09					1			N	13-1/8		134
SUB DATA 11	L	F02C1		1-04 *		D09											134
SUB DATA 11	L			1											10-1/8		134
SUB DATA 12	L	A09K1		1-01 *		D10					1			N	3-4/8		135
SUB DATA 12	L	A03K1		1-02 *		D12- 1					2			N	1-4/8		135
SUB DATA 12	L	A01K1		1-03 *		D09					1			N	15-1/8		135
SUB DATA 12	L	F02R2		1-04 *		D09											135
SUB DATA 12	L			1											20-1/8		135

DH11.C RUN NAME	A/P	WRP200.V34(62)-1		31-JUL-75		DRAW OPT	RV	RG	Y	X	Z	REMARKS	12-JUL-76	16136 NC FLAG	PAGE 13		RUN NUMBER
		PIN NAME	ORDER PIN	BAY - ORDER	Q										LENGTH	EXCEPTIONS	
SUB DATA 13	L	A09L2		1-01 *		D10					1			N	3-4/8		136
SUB DATA 13	L	A03L2		1-02 *		D12- 1					2			N	1-4/8		136
SUB DATA 13	L	A01L2		1-03 *		D09					1			N	14-7/8		136
SUB DATA 13	L	F02T2		1-04 *		D09											136
SUB DATA 13	L			1											19-7/8		136
SUB DATA 14	L	A09L1		1-01 *		D10					1			N	3-4/8		137
SUB DATA 14	L	A03L1		1-02 *		D12- 1					2			N	1-4/8		137
SUB DATA 14	L	A01L1		1-03 *		D09					1			N	14-7/8		137
SUB DATA 14	L	F02S2		1-04 *		D09											137
SUB DATA 14	L			1											19-7/8		137
SUB DATA 15	L	A09M2		1-01 *		D10					1			N	3-4/8		138
SUB DATA 15	L	A03M2		1-02 *		D12- 3					2			N	1-4/8		138
SUB DATA 15	L	A01M2		1-03 *		D09					1			N	14-3/8		138
SUB DATA 15	L	F02P2		1-04 *		D09											138
SUB DATA 15	L			1											19-3/8		138
SUB DC LO	L	B01F2		1-01 *		D10					1			N	4-4/8		139
SUB DC LO	L	B00F2		1-02 *		D10											139
SUB DC LO	L			1											4-4/8		139
SUB INIT	L	A01A1	A04A1	1-01 *	2						2			N	2		140
SUB INIT	L	A04A1	A09A1	1-02 *							1			N	3		140
SUB INIT	L	A09A1	D00V1	1-03 *							2			N	10-7/8		140
SUB INIT	L	D00V1	F02D1	1-04 *							1			N	5-3/8		140
SUB INIT	L	F02D1		1-05 *													140
SUB INIT	L			1											21-2/8		140
SUB INTR	L	A09B1		1-01 *		D10					1			N	2-6/8		141
SUB INTR	L	A06M1		1-02 *		D07					2			N	3-7/8		141
SUB INTR	L	A01B1		1-03 *		D09					1			N	14-7/8		141
SUB INTR	L	F01M1		1-04 *		D09											141
SUB INTR	L			1											21-4/8		141
SUB MSYN	L	B00V1		1-01 *		D10					2			N	3		142
SUB MSYN	L	B04V1		1-02 *		D13- 1					1			N	2-6/8		142
SUB MSYN	L	B02E1		1-03 *		D07					2			N	2-3/8		142
SUB MSYN	L	B01V1		1-04 *		D09					1			N	6-5/8		142
SUB MSYN	L	E01E1		1-05 *		D09											142
SUB MSYN	L			1											14-6/8		142
SUB NPG IN A	H	A01U1		1-01 *		D08					1			N	2-7/8		143
SUB NPG IN A	H	A02B1		1-02 *		D08											143
SUB NPG IN A	H			1											2-7/8		143
SUB NPG OUT A	H	A02V2		1-01 *		D07					1			N	3-5/8		144
SUB NPG OUT A	H	A09U1		1-02 *		D08											144
SUB NPG OUT A	H			1											3-5/8		144
SUB NPR	L	A09S2		1-01 *		D08					2			N	2-7/8		145
SUB NPR	L	A06J1		1-02 *		D07					1			N	3-3/8		145
SUB NPR	L	A02U2		1-03 *		D07					2			N	1		145
SUB NPR	L	A01S2		1-04 *		D08					1			N	12-7/8		145
SUB NPR	L	F01J1		1-05 *		D08											145
SUB NPR	L			1											20-1/8		145

DH11.C		WRP200.V34(62)-1		31-JUL-75		12-JUL-76		PAGE 16		REMARKS	16136		RUN
RUN NAME		A/P	PIN	ORDER	BAY -	Q	DRAW	RV	RG	Y	X	Z	
			NAME	PIN	ORDER		OPT						NUMBER
CONTROL STROBE LINE 00	H		E04D1		1-01 *		D13- 1					2	171
CONTROL STROBE LINE 00	H		E06D2		1-02 *		D03- 2					1	171
CONTROL STROBE LINE 00	H		E08S2		1-03 *		D05- 1						171
CONTROL STROBE LINE 00	H				1								171
CONTROL STROBE LINE 01	H		E04C1		1-01 *		D13- 1					2	172
CONTROL STROBE LINE 01	H		E08M2		1-02 *		D05- 1					1	172
CONTROL STROBE LINE 01	H		F06R1		1-03 *		D03- 2						172
CONTROL STROBE LINE 01	H				1								172
CONTROL STROBE LINE 02	H		E04A1		1-01 *		D13- 1					1	173
CONTROL STROBE LINE 02	H		E06P2		1-02 *		D03- 3					2	173
CONTROL STROBE LINE 02	H		E08H2		1-03 *		D05- 1						173
CONTROL STROBE LINE 02	H				1								173
CONTROL STROBE LINE 03	H		C06R2		1-01 *		D03- 3					1	174
CONTROL STROBE LINE 03	H		E08C1		1-02 *		D05- 1					2	174
CONTROL STROBE LINE 03	H		E04B1		1-03 *		D13- 1						174
CONTROL STROBE LINE 03	H				1								174
CONTROL STROBE LINE 04	H		C08K2		1-01 *		D05- 2					1	175
CONTROL STROBE LINE 04	H		D06E1		1-02 *		D03- 4					2	175
CONTROL STROBE LINE 04	H		D04S1		1-03 *		D13- 1						175
CONTROL STROBE LINE 04	H				1								175
CONTROL STROBE LINE 05	H		C08C1		1-01 *		D05- 2					1	176
CONTROL STROBE LINE 05	H		D06S1		1-02 *		D03- 4					2	176
CONTROL STROBE LINE 05	H		D04V1		1-03 *		D13- 1						176
CONTROL STROBE LINE 05	H				1								176
CONTROL STROBE LINE 06	H		B08U2		1-01 *		D05- 2					2	177
CONTROL STROBE LINE 06	H		C04V2		1-02 *		D13- 1					1	177
CONTROL STROBE LINE 06	H		F06B1		1-03 *		D03- 5						177
CONTROL STROBE LINE 06	H				1								177
CONTROL STROBE LINE 07	H		B08P2		1-01 *		D05- 2					2	178
CONTROL STROBE LINE 07	H		C06A1		1-02 *		D03- 5					1	178
CONTROL STROBE LINE 07	H		C04U1		1-03 *		D13- 1						178
CONTROL STROBE LINE 07	H				1								178
CONTROL STROBE LINE 08	H		C04R2		1-01 *		D13- 1					1	179
CONTROL STROBE LINE 08	H		E07D2		1-02 *		D04- 2					2	179
CONTROL STROBE LINE 08	H		E08V2		1-03 *		D05- 3						179
CONTROL STROBE LINE 08	H				1								179
CONTROL STROBE LINE 09	H		C04N1		1-01 *		D13- 1					1	180
CONTROL STROBE LINE 09	H		E08N2		1-02 *		D05- 3					2	180
CONTROL STROBE LINE 09	H		F07R1		1-03 *		D04- 2						180
CONTROL STROBE LINE 09	H				1								180
CONTROL STROBE LINE 10	H		C04U2		1-01 *		D13- 1					1	181
CONTROL STROBE LINE 10	H		E08J2		1-02 *		D05- 3					2	181
CONTROL STROBE LINE 10	H		E07P2		1-03 *		D04- 3						181
CONTROL STROBE LINE 10	H				1								181

DH11.C		WRP200.V34(62)-1		31-JUL-75		12-JUL-76		PAGE 17		REMARKS	16136		RUN
RUN NAME		A/P	PIN	ORDER	BAY -	Q	DRAW	RV	RG	Y	X	Z	
			NAME	PIN	ORDER		OPT						NUMBER
CONTROL STROBE LINE 11	H		A04V2		1-01 *		D13- 1					1	182
CONTROL STROBE LINE 11	H		C07P2		1-02 *		D04- 3					2	182
CONTROL STROBE LINE 11	H		E08D2		1-03 *		D05- 3						182
CONTROL STROBE LINE 11	H				1								182
CONTROL STROBE LINE 12	H		A04U1		1-01 *		D13- 1					1	183
CONTROL STROBE LINE 12	H		C08L2		1-02 *		D05- 4					2	183
CONTROL STROBE LINE 12	H		D07E1		1-03 *		D04- 4						183
CONTROL STROBE LINE 12	H				1								183
CONTROL STROBE LINE 13	H		A04N1		1-01 *		D13- 1					1	184
CONTROL STROBE LINE 13	H		C08D2		1-02 *		D05- 4					2	184
CONTROL STROBE LINE 13	H		D07S1		1-03 *		D04- 4						184
CONTROL STROBE LINE 13	H				1								184
CONTROL STROBE LINE 14	H		B08V2		1-01 *		D05- 4					2	185
CONTROL STROBE LINE 14	H		C04N1		1-02 *		D13- 1					1	185
CONTROL STROBE LINE 14	H		F07B1		1-03 *		D04- 5						185
CONTROL STROBE LINE 14	H				1								185
CONTROL STROBE LINE 15	H		B08R2		1-01 *		D05- 4					2	186
CONTROL STROBE LINE 15	H		C07A1		1-02 *		D04- 5					1	186
CONTROL STROBE LINE 15	H		C04V1		1-03 *		D13- 1						186
CONTROL STROBE LINE 15	H				1								186
D00	H		D01N1		1-01 *		D09					2	187
D00	H		D02N1		1-02 *		D09					1	187
D00	H		E02F2		1-03 *		D09						187
D00	H				1								187
D01	H		D01P1		1-01 *		D09					2	188
D01	H		D02P1		1-02 *		D09					1	188
D01	H		E02E2		1-03 *		D09						188
D01	H				1								188
D02	H		D01H2		1-01 *		D09					2	189
D02	H		D02H2		1-02 *		D09					1	189
D02	H		E02H2		1-03 *		D09						189
D02	H				1								189
D03	H		D01J2		1-01 *		D09					2	190
D03	H		D02J2		1-02 *		D09					1	190
D03	H		E02D2		1-03 *		D09						190
D03	H				1								190
DATA READY	L		D05D1		1-01 *		D11- 2					1	191
DATA READY	L		D09V1		1-02 *		D01- 2						191
DATA READY	L				1								191
DATA SOURCE A	H		D04T2		1-01 *		D13- 1					1	192
DATA SOURCE A	H		E03B2		1-02 *		D12- 2						192
DATA SOURCE A	H				1								192
DATA SOURCE B	H		D03T2		1-01 *		D12- 2					1	193
DATA SOURCE B	H		D04U2		1-02 *		D13- 1						193
DATA SOURCE B	H				1								193

DH11.C		WRP288.V34(62)-1				31-JUL-75		12-JUL-76				16136		PAGE 20			
RUN NAME		A/P	PIN	ORDER	RAY -	Q	DRAW	RV	RG	Y	X	Z	REMARKS	NC	LENGTH	EXCEPTIONS	RUN
			NAME	PIN	ORDER			OPT							FLAG		NUMBER
GND	01		A01B2		1-01 *		D10					2		N	0-1/8		217
GND	01		A01C2		1-02 *		D10					1		N	1-5/8		217
GND	01		A01H1		1-03 *		D10					2		N	0-1/8		217
GND	01		A01P1		1-04 *		D10					1		N	0-1/8		217
GND	01		A01R1		1-05 *		D10					2		N	0-1/8		217
GND	01		A01S1		1-06 *		D10					1		N	0-1/8		217
GND	01		A01T1		1-07 *		D10					2		N	1-5/8		217
GND	01		B01B2		1-08 *		D10					1		N	0-1/8		217
GND	01		B01C2		1-09 *		D10					2		N	0-1/8		217
GND	01		B01D1		1-10 *		D10					1		N	0-1/8		217
GND	01		B01E1		1-11 *		D10					2		N	1-7/8		217
GND	01		B01T1		1-12 *		D10					1		N	0-4/8		217
GND	01		B01V2		1-13 *		D10					2		N	1-1/8		217
GND	01		C01C2		1-14 *							1		N	2-1/8		217
GND	01		C01T1		1-15 *							2		N	1-5/8		217
GND	01		D01C2		1-16 *							1		N	2-1/8		217
GND	01		D01T1		1-17 *							2		N	1-1/8		217
GND	01		E01A1		1-18 *		D09					1		N	0-4/8		217
GND	01		E01C2		1-19 *							2		N	2-1/8		217
GND	01		E01T1		1-20 *							1		N	1-5/8		217
GND	01		F01C2		1-21 *							2		N	1-1/8		217
GND	01		F01J2		1-22 *		D09					1		N	1-5/8		217
GND	01		F01T1		1-23 *												217
GND	01				1										21-6/8		217
GND	02		A02H2		1-01 *	2						2		N	1		218
GND	02		A02C2		1-02 *							1		N	1-1/8		218
GND	02		A02J2		1-03 *		D07					2		N	1-3/8		218
GND	02		A02R1		1-04 *		D07					1		N	0-4/8		218
GND	02		A02T1		1-05 *							2		N	1-5/8		218
GND	02		B02C2		1-06 *							1		N	0-4/8		218
GND	02		B02C1		1-07 *		D07					2		N	1-2/8		218
GND	02		B02J2		1-08 *		D07					1		N	1-2/8		218
GND	02		B02P1		1-09 *		D07					2		N	0-1/8		218
GND	02		B02R1		1-10 *		D07					1		N	0-4/8		218
GND	02		B02T1		1-11 *							2		N	1-3/8		218
GND	02		C02C2		1-12 *							1		N	2-1/8		218
GND	02		C02T1		1-13 *							2		N	1-5/8		218
GND	02		D02C2		1-14 *							1		N	2-1/8		218
GND	02		D02T1		1-15 *							2		N	1-3/8		218
GND	02		E02C2		1-16 *							1		N	2-1/8		218
GND	02		E02T1		1-17 *							2		N	1-5/8		218
GND	02		F02B2		1-18 *		D09					1		N	0-1/8		218
GND	02		F02C2		1-19 *							2		N	2-1/8		218
GND	02		F02T1		1-20 *												218
GND	02				1										23-7/8		218

DH11.C		WRP288.V34(67)-1		31-JUL-75		12-JUL-76							16136		PAGE 21		RUN	
RUN NAME		A/P	PIN	ORDER	RAY -	Q	DRAW	RV	RG	Y	X	Z	REMARKS	NC	LENGTH	EXCEPTIONS	NUMBER	
			NAME	PIN	ORDER													
GND	03		A02E1		1-01 *	2						2		N	1-3/8		219	
GND	03		A03C2		1-02 *							1		N	2-1/8		219	
GND	03		A03T1		1-03 *							2		N	1-5/8		219	
GND	03		B03C2		1-04 *							1		N	2-1/8		219	
GND	03		B03T1		1-05 *							2		N	1-3/8		219	
GND	03		C03C2		1-06 *							1		N	2-1/8		219	
GND	03		C03T1		1-07 *							2		N	1-5/8		219	
GND	03		D03C2		1-08 *							1		N	2-1/8		219	
GND	03		D03T1		1-09 *							2		N	1-3/8		219	
GND	03		E03C2		1-10 *							1		N	2-1/8		219	
GND	03		E03T1		1-11 *							2		N	1-5/8		219	
GND	03		F03C2		1-12 *							1		N	2-1/8		219	
GND	03		F03T1		1-13 *												219	
GND	03				1										21-6/8		219	
GND	04		A04C2		1-01 *							1		N	2-1/8		220	
GND	04		A04T1		1-02 *							2		N	1-5/8		220	
GND	04		B04C2		1-03 *							1		N	2-1/8		220	
GND	04		B04T1		1-04 *							2		N	1-3/8		220	
GND	04		C04C2		1-05 *							1		N	2-1/8		220	
GND	04		C04T1		1-06 *							2		N	1-5/8		220	
GND	04		D04C2		1-07 *							1		N	2-1/8		220	
GND	04		D04T1		1-08 *							2		N	1-3/8		220	
GND	04		E04C2		1-09 *							1		N	2-1/8		220	
GND	04		E04T1		1-10 *							2		N	1-5/8		220	
GND	04		F04C2		1-11 *							1		N	2-1/8		220	
GND	04		F04T1		1-12 *												220	
GND	04				1										20-3/8		220	
GND	05		A05C2		1-01 *							1		N	2-1/8		221	
GND	05		A05T1		1-02 *							2		N	1-5/8		221	
GND	05		B05C2		1-03 *							1		N	2-1/8		221	
GND	05		B05T1		1-04 *							2		N	1-3/8		221	
GND	05		C05C2		1-05 *							1		N	2-1/8		221	
GND	05		C05T1		1-06 *							2		N	1-5/8		221	
GND	05		D05C2		1-07 *							1		N	2-1/8		221	
GND	05		D05T1		1-08 *							2		N	1-3/8		221	
GND	05		E05C2		1-09 *							1		N	2-1/8		221	
GND	05		E05T1		1-10 *							2		N	1-5/8		221	
GND	05		F05C2		1-11 *							1		N	2-1/8		221	
GND	05		F05T1		1-12 *												221	
GND	05				1										20-3/8		221	

DN11.C	WRP200,V34(62)-1	31-JUL-75	12-JUL-76	16136	PAGE 22			
RUN NAME	A/P PIN NAME	ORDER PIN	BAY - ORDER	Q DRAW RV RG Y X Z	REMARKS	NC LENGTH EXCEPTIONS	RUN NUMBER	
				OPT		FLAG		
GND 06	A06C2	1-01 *				N	1-1/8	222
GND 06	A06J2	1-02 *	D07			N	1-5/8	222
GND 06	A06T1	1-03 *				N	1-5/8	222
GND 06	B06C2	1-04 *				N	2-1/8	222
GND 06	B06T1	1-05 *				N	1-3/8	222
GND 06	C06C2	1-06 *				N	2-1/8	222
GND 06	C06T1	1-07 *				N	1-5/8	222
GND 06	D06C2	1-08 *				N	2-1/8	222
GND 06	D06T1	1-09 *				N	1-3/8	222
GND 06	E06C2	1-10 *				N	2-1/8	222
GND 06	E06T1	1-11 *				N	1-5/8	222
GND 06	F06C2	1-12 *				N	2-1/8	222
GND 06	F06T1	1-13 *						222
GND 06		1					21-0/8	222
GND 07	A07C2	1-01 *				N	2-1/8	223
GND 07	A07T1	1-02 *				N	1-3/8	223
GND 07	B07A1	1-03 *	D02			N	0-1/8	223
GND 07	B07B1	1-04 *	D02			N	3-1/8	223
GND 07	C07C2	1-05 *				N	2-1/8	223
GND 07	C07T1	1-06 *				N	1-5/8	223
GND 07	D07C2	1-07 *				N	2-1/8	223
GND 07	D07T1	1-08 *				N	1-3/8	223
GND 07	E07C2	1-09 *				N	2-1/8	223
GND 07	E07T1	1-10 *				N	1-5/8	223
GND 07	F07C2	1-11 *				N	2-1/8	223
GND 07	F07T1	1-12 *						223
GND 07		1					19-7/8	223
GND 08	A08C2	1-01 *				N	2-1/8	224
GND 08	A08T1	1-02 *				N	1-5/8	224
GND 08	B08C2	1-03 *				N	2-1/8	224
GND 08	B08T1	1-04 *				N	1-3/8	224
GND 08	C08C2	1-05 *				N	2-1/8	224
GND 08	C08T1	1-06 *				N	1-5/8	224
GND 08	D08C2	1-07 *				N	2-1/8	224
GND 08	D08T1	1-08 *				N	1-3/8	224
GND 08	E08C2	1-09 *				N	2-1/8	224
GND 08	E08T1	1-10 *				N	1-5/8	224
GND 08	F08C2	1-11 *				N	1-2/8	224
GND 08	F08K2	1-12 *	D05- 3		EXT A BAUD	N	1-1/8	224
GND 08	F08R2	1-13 *	D05- 3		EXT B BAUD	N	0-4/8	224
GND 08	F08T1	1-14 *				N	0-4/8	224
GND 08	F08V1	1-15 *	D05- 3		Z0 BAUD			224
GND 08		1					21-5/8	224

DH11.C	WRP288.V34(62)-1		31-JUL-75		12-JUL-76		16136		PAGE 23		RUN NUMBER	
RUN NAME	A/P	PIN NAME	ORDER PIN	RAY = ORDER	Q	DRAW OPT	RV RG Y	X Z	REMARKS	NC FLAG		LENGTH EXCEPTIONS
GND 09		A09B2		1-01 *		D10		1		N	0-1/8	225
GND 09		A09C2		1-02 *		D10		2		N	1-5/8	225
GND 09		A09N1		1-03 *		D10		1		N	0-1/8	225
GND 09		A09P1		1-04 *		D10		2		N	0-1/8	225
GND 09		A09R1		1-05 *		D10		1		N	0-1/8	225
GND 09		A09S1		1-06 *		D10		2		N	0-1/8	225
GND 09		A09T1		1-07 *				1		N	0-4/8	225
GND 09		A09V2		1-08 *		D10		2		N	1-2/8	225
GND 09		B09B2		1-09 *		D10		1		N	0-1/8	225
GND 09		B09C2		1-10 *		D10		2		N	0-1/8	225
GND 09		B09D1		1-11 *		D10		1		N	0-1/8	225
GND 09		B09E1		1-12 *		D10		2		N	1-7/8	225
GND 09		B09T1		1-13 *		D10		1		N	0-4/8	225
GND 09		B09V2		1-14 *		D10		2		N	1-1/8	225
GND 09		C09C2		1-15 *				1		N	2-1/8	225
GND 09		CA9S1		1-16 *		D01- 1		2	BP BIT IS DATA	N	1-5/8	225
GND 09		CA9T1		1-17 *				1		N	1-5/8	225
GND 09		DA9C2		1-18 *				2		N	2-1/8	225
GND 09		DA9T1		1-19 *				1		N	1-3/8	225
GND 09		EA9C2		1-20 *				2		N	2-1/8	225
GND 09		EA9T1		1-21 *				1		N	1-5/8	225
GND 09		FA9C2		1-22 *				2		N	2-1/8	225
GND 09		FA9T1		1-23 *								225
GND 09				1							295-5/8	225
GROUP 0-7	H	D02R2		1-01 *		D09		1		N	0-1/8	226
GROUP 0-7	H	D02S2		1-02 *		D09		2		N	0-4/8	226
GROUP 0-7	H	D02U1		1-03 *		D09		1		N	0-1/8	226
GROUP 0-7	H	D02V1		1-04 *		D09		2		N	2-3/8	226
GROUP 0-7	H	E02P1		1-05 *		D09						226
GROUP 0-7	H			1							3-1/8	226
GROUP 0-15	H	D01R2		1-01 *		D09		1		N	0-1/8	227
GROUP 0-15	H	D01S2		1-02 *		D09		2		N	0-4/8	227
GROUP 0-15	H	D01U1		1-03 *		D09		1		N	0-1/8	227
GROUP 0-15	H	D01V1		1-04 *		D09		2		N	1-7/8	227
GROUP 0-15	H	E02F1		1-05 *		D09		1		N	4-7/8	227
GROUP 0-15	H	F02V2		1-06 *		D09						227
GROUP 0-15	H			1							7-4/8	227
HALF DUPLEX 00	H	EA9S1		1-01 *		D11- 4		1		N	2	228
HALF DUPLEX 00	H	EA9T1		1-02 *		D05- 1						228
HALF DUPLEX 00	H			1							2-0/8	228
HALF DUPLEX 01	H	D08K2		1-01 *		D11- 4		1		N	2	229
HALF DUPLEX 01	H	D08K2		1-02 *		D05- 1						229
HALF DUPLEX 01	H			1							2-0/8	229
HALF DUPLEX 02	H	D08D2		1-01 *		D11- 4		1		N	2	230
HALF DUPLEX 02	H	D08D2		1-02 *		D05- 1						230
HALF DUPLEX 02	H			1							2-0/8	230
HALF DUPLEX 03	H	C08R2		1-01 *		D11- 4		1		N	2	231
HALF DUPLEX 03	H	C08R2		1-02 *		D05- 1						231
HALF DUPLEX 03	H			1							2-0/8	231

DH11.C RUN NAME	A/P	WRP288.V34(62)-1		31-JUL-75		O	DRAW	RV	RG	Y	X	Z	REMARKS	12-JUL-76		16136 NC LENGTH EXCEPTIONS FLAG	PAGE 26		RUN NUMBER
		PIN NAME	ORDER PIN	BAY - ORDER															
LOAD BAR LB+HB	L	C04N2		1-01 *			D13- 1					1				N	8-3/8		258
LOAD BAR LB+HB	L	F03J2		1-02 *			D12- 2												258
LOAD BAR LB+HB	L			1													8-3/8		258
LDAD BC	H	C03J1		1-01 *			D12- 1					1				N	10-1/8		259
LDAD BC	H	F04U2		1-02 *			D13- 1												259
LDAD BC	H			1													10-1/8		259
LDAD BCR	H	D03U2		1-01 *			D12- 2					1				N	5-7/8		260
LDAD BCR	H	F04U1		1-02 *			D13- 1												260
LDAD BCR	H			1													5-7/8		260
LDAD LPR	H	E03J2		1-01 *			D12- 2					1				N	1-2/8		261
LDAD LPR	H	E04P2		1-02 *			D13- 1												261
LDAD LPR	H			1													1-2/8		261
LOAD PULSE	L	D09K2		1-01 *			D01- 2					1				N	6-7/8		262
LOAD PULSE	L	F05A1		1-02 *			D11- 1												262
LOAD PULSE	L			1													6-7/8		262
LDAD REQ (0)	H	D09V2					D01- 2										1-PIN RUN		263
LDAD SCR HIGH BYTE	H	C04P1		1-01 *			D13- 1					1				N	8-7/8		264
LDAD SCR HIGH BYTE	H	F05N1		1-02 *			D11- 2												264
LDAD SCR HIGH BYTE	H			1													8-7/8		264
LDAD SCR LDW BYTE	H	D05N1		1-01 *			D11- 2					1				N	3-5/8		265
LDAD SCR LDW BYTE	H	C04T2		1-02 *			D13- 1												265
LDAD SCR LDW BYTE	H			1													3-5/8		265
LDAD SILO	L	A05J2		1-01 *			D11- 1					1				N	10-3/8		266
LDAD SILO	L	D09J2		1-02 *			D01- 2												266
LDAD SILO	L			1													10-3/8		266
LDAD SSR HIGH BYTE	H	C04P2		1-01 *			D13- 1					1				N	4-3/8		267
LDAD SSR HIGH BYTE	H	D03U1		1-02 *			D12- 3												267
LDAD SSR HIGH BYTE	H			1													4-3/8		267
LDAD SSR LDW BYTE	H	C04R1		1-01 *			D13- 1					1				N	6-3/8		268
LDAD SSR LDW BYTE	H	E03S1		1-02 *			D12- 2												268
LDAD SSR LDW BYTE	H			1													6-3/8		268
LPR 03	H	F03M1					D12- 2										1-PIN RUN		269
LPR 06	L	E03K2		1-01 *			D12- 2					1				N	4-3/8		270
LPR 06	L	F08L2		1-02 *			D05- 1												270
LPR 06	L			1													4-3/8		270
LPR 07	L	E03R1		1-01 *			D12- 2					1				N	4-3/8		271
LPR 07	L	F08S2		1-02 *			D05- 1												271
LPR 07	L			1													4-3/8		271
LPR 08	L	C03L2		1-01 *			D12- 3					1				N	11-1/8		272
LPR 08	L	F08N2		1-02 *			D05- 1												272
LPR 08	L			1													11-1/8		272

DH11.C RUN NAME	A/P	WRP288.V34(62)-1		31-JUL-75		O	DRAW	RV	RG	Y	X	Z	REMARKS	12-JUL-76		16136 NC LENGTH EXCEPTIONS FLAG	PAGE 27		RUN NUMBER
		PIN NAME	ORDER PIN	BAY - ORDER															
LPR 09	L	C03K2		1-01 *			D12- 3					1				N	11-1/8		273
LPR 09	L	F08M2		1-02 *			D05- 1												273
LPR 09	L			1													11-1/8		273
LPR 10	L	C03K1		1-01 *			D12- 3					1				N	11-1/8		274
LPR 10	L	F08J2		1-02 *			D05- 1												274
LPR 10	L			1													11-1/8		274
LPR 11	L	C03L1		1-01 *			D12- 3					1				N	10-5/8		275
LPR 11	L	F08M2		1-02 *			D05- 1												275
LPR 11	L			1													10-5/8		275
LPR 12	L	D03S2		1-01 *			D12- 3					1				N	6-7/8		276
LPR 12	L	F08F2		1-02 *			D05- 1												276
LPR 12	L			1													6-7/8		276
LPR 13	L	E03H1		1-01 *			D12- 3					1				N	4-3/8		277
LPR 13	L	F08F2		1-02 *			D05- 1												277
LPR 13	L			1													4-3/8		277
LPR 14	L	E03K1		1-01 *			D12- 3					1				N	5-2/8		278
LPR 14	L	F08H1		1-02 *			D05- 1												278
LPR 14	L			1													5-2/8		278
LPR 15	L	E03J1		1-01 *			D12- 3					1				N	5-4/8		279
LPR 15	L	F08P2		1-02 *			D05- 1												279
LPR 15	L			1													5-4/8		279
MASTER B	L	F01P2		1-01 *			D09					2				N	0-1/8		280
MASTER B	L	F01R2		1-02 *			D09					1				N	0-1/8		280
MASTER B	L	F01S2		1-03 *			D09												280
MASTER B	L			1													0-2/8		280
MASTER NPR	L	A02N1		1-01 *			D07					2				N	2-5/8		281
MASTER NPR	L	B02H2		1-02 *			D07					1				N	0-4/8		281
MASTER NPR	L	B02H1		1-03 *			D07												281
MASTER NPR	L			1													3-1/8		281
MEM ADD A	H	C03A1		1-01 *			D12- 1					1				N	5-1/8		282
MEM ADD A	H	D04N1		1-02 *			D13- 2												282
MEM ADD A	H			1													5-1/8		282
MEM ADD B	H	B03U1		1-01 *			D12- 1					1				N	5-7/8		283
MEM ADD B	H	D04N2		1-02 *			D13- 2												283
MEM ADD B	H			1													5-7/8		283
MEM ADD C	H	B03U2		1-01 *			D12- 1					1				N	5-3/8		284
MEM ADD C	H	D04P1		1-02 *			D13- 2												284
MEM ADD C	H			1													5-3/8		284
MEM ADD D	H	B03J2		1-01 *			D12- 1					1				N	6-1/8		285
MEM ADD D	H	D04M1		1-02 *			D13- 2												285
MEM ADD D	H			1													6-1/8		285

DH11.C RUN NAME	A/P	WRP200.V34(62)-1		31-JUL-75		Q	DRAW	RV	RG	Y	X	Z	REMARKS	12-JUL-76	16136 NC FLAG	PAGE 30		RUN NUMBER
		PIN NAME	ORDER PIN	BAY - ORDER												LENGTH	EXCEPTIONS	
NRC 04	H	C09E1		1-01 *			D01- 2					1			N	4-6/8		302
NRC 04	H	D03J1		1-02 *			D12- 2											302
NRC 04	H			1												4-6/8		302
NRC 05	H	C09F1		1-01 *			D01- 2					1			N	6-3/8		303
NRC 05	H	E03A1		1-02 *			D12- 2											303
NRC 05	H			1												6-3/8		303
NRC 06	H	C09H1		1-01 *			D01- 2					1			N	8-7/8		304
NRC 06	H	E03N2		1-02 *			D12- 2											304
NRC 06	H			1												8-7/8		304
NRC 07	H	C09J1		1-01 *			D01- 2					1			N	10-7/8		305
NRC 07	H	F03C1		1-02 *			D12- 2											305
NRC 07	H			1												10-7/8		305
NRC 08	H	C03P2		1-01 *			D12- 3					1			N	4-5/8		306
NRC 08	H	D09C1		1-02 *			D01- 2											306
NRC 08	H			1												4-5/8		306
NRC 09	H	C03D1		1-01 *			D12- 3					1			N	4-5/8		307
NRC 09	H	D09D1		1-02 *			D01- 2											307
NRC 09	H			1												4-5/8		307
NRC 10	H	D03L2		1-01 *			D12- 3					1			N	7-5/8		308
NRC 10	H	D09E1		1-02 *			D01- 2											308
NRC 10	H			1												7-5/8		308
NRC 11	H	A03U1		1-01 *			D12- 3					1			N	10-1/8		309
NRC 11	H	D09F1		1-02 *			D01- 2											309
NRC 11	H			1												10-1/8		309
NRC 12	H	D03D2		1-01 *			D12- 3					1			N	5-4/8		310
NRC 12	H	C09M1		1-02 *			D01- 2											310
NRC 12	H			1												5-4/8		310
NRC 13	H	D03N2		1-01 *			D12- 3					1			N	4-2/8		311
NRC 13	H	C09M1		1-02 *			D01- 2											311
NRC 13	H			1												4-2/8		311
NRC 14	H	C03F1		1-01 *			D12- 3					1			N	4-1/8		312
NRC 14	H	C09P1		1-02 *			D01- 2											312
NRC 14	H			1												4-1/8		312
NRC 15	H	C03P1		1-01 *			D12- 3					1			N	5-1/8		313
NRC 15	H	D09L1		1-02 *			D01- 2											313
NRC 15	H			1												5-1/8		313

DH11.C RUN NAME	A/P	WRP200.V34(62)-1		31-JUL-75		Q	DRAW	RV	RG	Y	X	Z	REMARKS	12-JUL-76	16136 NC FLAG	PAGE 31		RUN NUMBER
		PIN NAME	ORDER PIN	BAY - ORDER												LENGTH	EXCEPTIONS	
NBD LPR 02	H	C06E2		1-01 *			D03- 5					2			N	1		314
NBD LPR 02	H	C07E2		1-02 *			D04- 5					1			N	1-6/8		314
NBD LPR 02	H	C07S2		1-03 *			D04- 3					2			N	1		314
NBD LPR 02	H	C06S2		1-04 *			D03- 3					1			N	2-1/8		314
NBD LPR 02	H	D06F1		1-05 *			D03- 4					2			N	1		314
NBD LPR 02	H	D07F1		1-06 *			D04- 4					1			N	1-7/8		314
NBD LPR 02	H	D07T2		1-07 *			D04- 4					2			N	1		314
NBD LPR 02	H	D06T2		1-08 *			D03- 4					1			N	1-6/8		314
NBD LPR 02	H	E06F2		1-09 *			D03- 2					2			N	1		314
NBD LPR 02	H	E07P2		1-10 *			D04- 2					1			N	1-5/8		314
NBD LPR 02	H	E07S2		1-11 *			D04- 3					2			N	1		314
NBD LPR 02	H	E06S2		1-12 *			D03- 3					1			N	2		314
NBD LPR 02	H	F06E2		1-13 *			D03- 5					2			N	1		314
NBD LPR 02	H	F07E2		1-14 *			D04- 5					1			N	1-7/8		314
NBD LPR 02	H	F07S1		1-15 *			D04- 2					2			N	1		314
NBD LPR 02	H	F06S1		1-16 *			D03- 2					1			N	2-5/8		314
NBD LPR 02	H	F03F1		1-17 *			D12- 2											314
NBD LPR 02	H			1												23-5/8		314
OUT LOW	H	D02U2		1-01 *			D09					2			N	1		315
OUT LOW	H	D01U2		1-02 *			D09					1			N	2-3/8		315
OUT LOW	H	E01N1		1-03 *			D09					2			N	3-3/8		315
OUT LOW	H	F02J2		1-04 *			D09											315
OUT LOW	H			1												6-6/8		315
PEN LPR 04	L	C06D1		1-01 *			D03- 5					2			N	1		316
PEN LPR 04	L	C07D1		1-02 *			D04- 5					1			N	1-6/8		316
PEN LPR 04	L	C07R1		1-03 *			D04- 3					2			N	1		316
PEN LPR 04	L	C06R1		1-04 *			D03- 3					1			N	2-1/8		316
PEN LPR 04	L	D06E2		1-05 *			D03- 4					2			N	1		316
PEN LPR 04	L	D07E2		1-06 *			D04- 4					1			N	1-6/8		316
PEN LPR 04	L	D07S2		1-07 *			D04- 4					2			N	1		316
PEN LPR 04	L	D06S2		1-08 *			D03- 4					1			N	1-6/8		316
PEN LPR 04	L	E06E2		1-09 *			D03- 2					2			N	1		316
PEN LPR 04	L	E07E2		1-10 *			D04- 2					1			N	1-5/8		316
PEN LPR 04	L	E07P1		1-11 *			D04- 3					2			N	1		316
PEN LPR 04	L	E06P1		1-12 *			D03- 3					1			N	2-2/8		316
PEN LPR 04	L	F06E1		1-13 *			D03- 5					2			N	1		316
PEN LPR 04	L	F07E1		1-14 *			D04- 5					1			N	1-7/8		316
PEN LPR 04	L	F07R2		1-15 *			D04- 2					2			N	1		316
PEN LPR 04	L	F06R2		1-16 *			D03- 2					1			N	2-5/8		316
PEN LPR 04	L	F03F2		1-17 *			D12- 2											316
PEN LPR 04	L			1												23-6/8		316

DN11,C RUN NAME	A/P	WRP200.V34(62)-1 PIN NAME	ORDER PIN	31-JUL-75 BAY - ORDER	Q	DRAW OPT	RV RG Y	X	Z	12-JUL-76 REMARKS	16136 NC LENGTH EXCEPTIONS FLAG	PAGE 32	RUN NUMBER
DEV LPR 05	L	C06F1		1-01 *		D03- 5			2		N 1		317
DEV LPR 05	L	C07F1		1-02 *		D04- 5			1		N 1-7/8		317
DEV LPR 05	L	C07U2		1-03 *		D04- 3			2		N 1		317
DEV LPR 05	L	C06U2		1-04 *		D03- 3			1		N 2		317
DEV LPR 05	L	D06H2		1-05 *		D03- 4			2		N 1		317
DEV LPR 05	L	D07H2		1-06 *		D04- 4			1		N 1-7/8		317
DEV LPR 05	L	D07V1		1-07 *		D04- 4			2		N 1		317
DEV LPR 05	L	D06V1		1-08 *		D03- 4			1		N 1-7/8		317
DEV LPR 05	L	E06J2		1-09 *		D03- 2			2		N 1		317
DEV LPR 05	L	E07J2		1-10 *		D04- 2			1		N 1-5/8		317
DEV LPR 05	L	E07U2		1-11 *		D04- 3			2		N 1		317
DEV LPR 05	L	E06U2		1-12 *		D03- 3			1		N 2-1/8		317
DEV LPR 05	L	F07H1		1-13 *		D04- 5			2		N 1		317
DEV LPR 05	L	F06H1		1-14 *		D03- 5			1		N 1-6/8		317
DEV LPR 05	L	F06U1		1-15 *		D03- 2			2		N 1		317
DEV LPR 05	L	F07U1		1-16 *		D04- 2			1		N 2-7/8		317
DEV LPR 05	L	F03N1		1-17 *		D12- 2							317
DEV LPR 05	L			1							24-0/8		317
RCV DATA ENABLE	H	D05E1		1-01 *		D11- 3			1		N 1-3/8		318
RCV DATA ENABLE	H	D06D2		1-02 *		D03- 2			2		N 1		318
RCV DATA ENABLE	H	D07D2		1-03 *		D04- 2							318
RCV DATA ENABLE	H			1							2-3/8		318
RCV INTR REQ	H	A06U1		1-01 *		D07			1		N 0-1/8		319
RCV INTR REQ	H	A06V1		1-02 *		D07			2		N 0-3/8		319
RCV INTR REQ	H	D05P1		1-03 *		D11- 2							319
RCV INTR REQ	H			1							8-4/8		319
RCV SCAN A	H	D09H1		1-01 *		D01- 1			2		N 2-7/8		320
RCV SCAN A	H	D05P2		1-02 *		D11- 1			1		N 2-7/8		320
RCV SCAN A	H	E06H1		1-03 *		D03- 4			2		N 1		320
RCV SCAN A	H	E07H1		1-04 *		D04- 4							320
RCV SCAN A	H			1							6-6/8		320
RCV SCAN B	H	D09J1		1-01 *		D01- 1			2		N 3-1/8		321
RCV SCAN B	H	D05P1		1-02 *		D11- 1			1		N 2-7/8		321
RCV SCAN B	H	E06K2		1-03 *		D03- 4			2		N 1		321
RCV SCAN B	H	E07K2		1-04 *		D04- 4							321
RCV SCAN B	H			1							7-0/8		321
RCV SCAN C	H	D09H2		1-01 *		D01- 1			1		N 4-1/8		322
RCV SCAN C	H	E07H1		1-02 *		D04- 2			2		N 1		322
RCV SCAN C	H	E06H1		1-03 *		D03- 4			1		N 0-4/8		322
RCV SCAN C	H	E05K2		1-04 *		D11- 1							322
RCV SCAN C	H			1							5-5/8		322
RCV SCAN D	H	D09F2		1-01 *		D01- 1			2		N 2-2/8		323
RCV SCAN D	H	D07N1		1-02 *		D04- 2			1		N 3-3/8		323
RCV SCAN D	H	E05H1		1-03 *		D11- 1							323
RCV SCAN D	H			1							5-5/8		323
RCV SCAN D	L	D06N1		1-01 *		D03- 2			1		N 2-3/8		324
RCV SCAN D	L	E05F2		1-02 *		D11- 1							324
RCV SCAN D	L			1							2-3/8		324

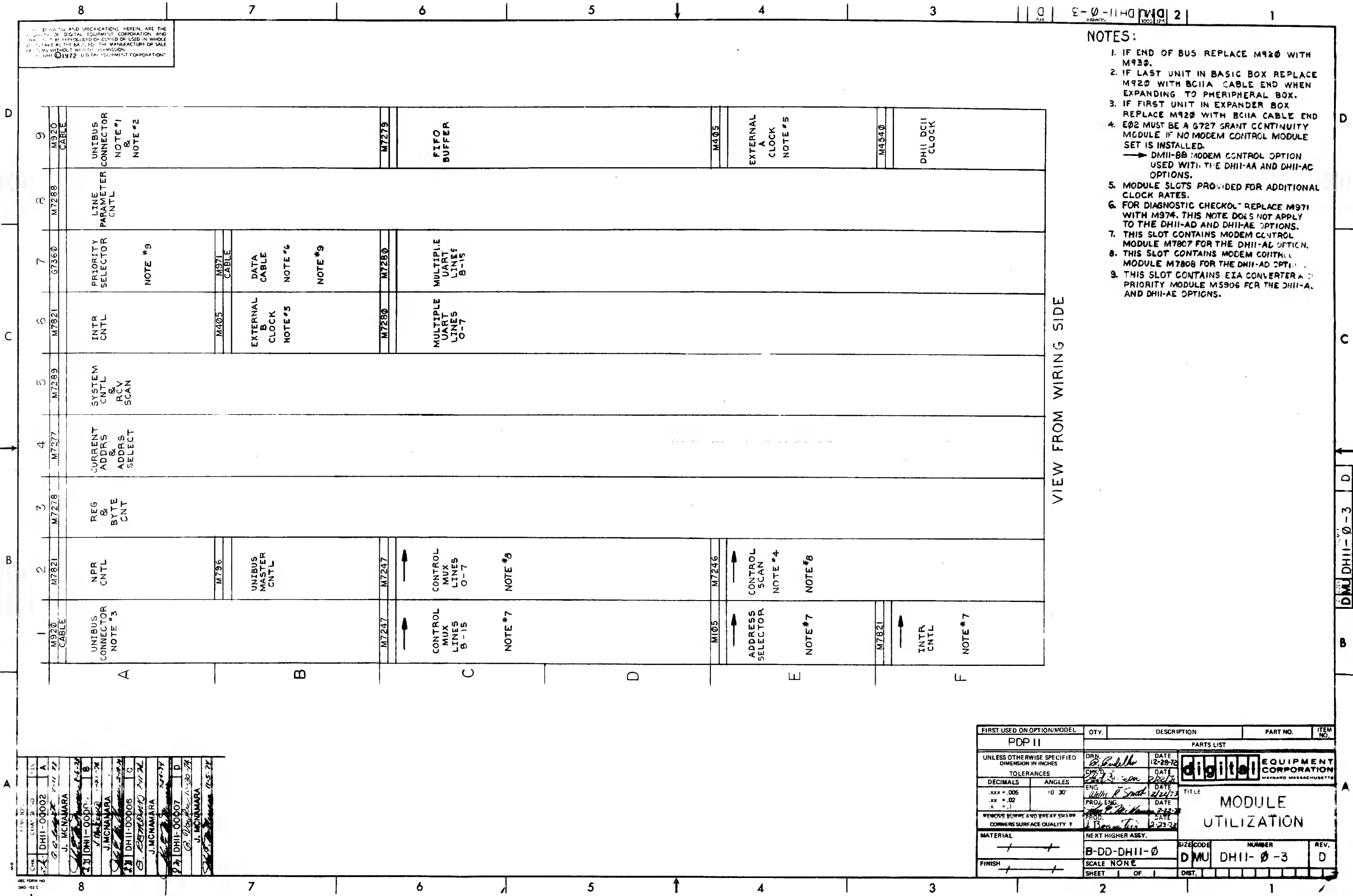
DN11,C RUN NAME	A/P	WRP200.V34(62)-1 PIN NAME	ORDER PIN	31-JUL-75 BAY - ORDER	Q	DRAW OPT	RV RG Y	X	Z	12-JUL-76 REMARKS	16136 NC LENGTH EXCEPTIONS FLAG	PAGE 33	RUN NUMBER
READ NRC	H	D09K1		1-01 *		D01- 2			1		N 4-6/8		325
READ NRC	H	E04P1		1-02 *		D13- 1							325
READ NRC	H			1							4-6/8		325
READY IN	L	C09L1		1-01 *		D01- 2			1		N 6-7/8		326
READY IN	L	E05D1		1-02 *		D11- 1							326
READY IN	L			1							6-7/8		326
REQUEST BUS (1)	H	A02U1		1-01 *		D07			1		N 0-1/8		327
REQUEST BUS (1)	H	A02V1		1-02 *		D07			2		N 3-2/8		327
REQUEST BUS (1)	H	B02V1		1-03 *		D07			1		N 2-3/8		327
REQUEST BUS (1)	H	B09R1		1-04 *		D11- 1							327
REQUEST BUS (1)	H			1							5-6/8		327
RESET DA	H	A03H2		1-01 *		D11- 1			1		N 8-7/8		328
RESET DA	H	D06K1		1-02 *		D03- 2			2		N 1		328
RESET DA	H	D07K1		1-03 *		D04- 2							328
RESET DA	H			1							9-7/8		328
RX CLOCK LINE 00	L	E06L1		1-01 *		D03- 2			1		N 1-7/8		329
RX CLOCK LINE 00	L	E08A1		1-02 *		D05- 1							329
RX CLOCK LINE 00	L			1							1-7/8		329
RX CLOCK LINE 01	L	D08R2		1-01 *		D05- 1			1		N 7-1/8		330
RX CLOCK LINE 01	L	F06V2		1-02 *		D03- 2							330
RX CLOCK LINE 01	L			1							7-1/8		330
RX CLOCK LINE 02	L	D08J2		1-01 *		D05- 1			1		N 6-1/8		331
RX CLOCK LINE 02	L	F06A1		1-02 *		D03- 3							331
RX CLOCK LINE 02	L			1							6-1/8		331
RX CLOCK LINE 03	L	C06V2		1-01 *		D03- 3			1		N 1-4/8		332
RX CLOCK LINE 03	L	C08V2		1-02 *		D05- 1							332
RX CLOCK LINE 03	L			1							1-4/8		332
RX CLOCK LINE 04	L	B08M1		1-01 *		D05- 2			1		N 6-1/8		333
RX CLOCK LINE 04	L	D06K2		1-02 *		D03- 4							333
RX CLOCK LINE 04	L			1							6-1/8		333
RX CLOCK LINE 05	L	B08D2		1-01 *		D05- 2			1		N 9-3/8		334
RX CLOCK LINE 05	L	E06D1		1-02 *		D03- 4							334
RX CLOCK LINE 05	L			1							9-3/8		334
RX CLOCK LINE 06	L	A08R2		1-01 *		D05- 2			1		N 14-3/8		335
RX CLOCK LINE 06	L	F06K1		1-02 *		D03- 5							335
RX CLOCK LINE 06	L			1							14-3/8		335
RX CLOCK LINE 07	L	A08J2		1-01 *		D05- 2			1		N 6-7/8		336
RX CLOCK LINE 07	L	C06J1		1-02 *		D03- 5							336
RX CLOCK LINE 07	L			1							6-7/8		336
RX CLOCK LINE 08	L	D08V2		1-01 *		D05- 3			1		N 2-5/8		337
RX CLOCK LINE 08	L	E07L1		1-02 *		D04- 2							337
RX CLOCK LINE 08	L			1							2-5/8		337

DH11.C RUN NAME	A/P	WRP200.V34(62)-1		31-JUL-75		Q	DRAW	RV	RG	Y	X	Z	REMARKS	12-JUL-76	16136 NC FLAG	PAGE 36		RUN NUMBER
		PIN NAME	ORDER PIN	BAY - ORDER	Q											LENGTH	EXCEPTIONS	
SERIAL IN 00	H	E05L2		1-01 *			D11- 4					1			N	1		363
SERIAL IN 00	H	E06L2		1-02 *			D03- 2											363
SERIAL IN 00	H			1												1-0/0		363
SERIAL IN 01	H	F05V1		1-01 *			D11- 4					1			N	1		364
SERIAL IN 01	H	F06V1		1-02 *			D03- 2											364
SERIAL IN 01	H			1												1-0/0		364
SERIAL IN 02	H	E05V2		1-01 *			D11- 4					1			N	1		365
SERIAL IN 02	H	E06V2		1-02 *			D03- 3											365
SERIAL IN 02	H			1												1-0/0		365
SERIAL IN 03	H	C05V1		1-01 *			D11- 4					1			N	1		366
SERIAL IN 03	H	C06V1		1-02 *			D03- 3											366
SERIAL IN 03	H			1												1-0/0		366
SERIAL IN 04	H	D05L1		1-01 *			D11- 4					1			N	1		367
SERIAL IN 04	H	D06L1		1-02 *			D03- 4											367
SERIAL IN 04	H			1												1-0/0		367
SERIAL IN 05	H	E05E1		1-01 *			D11- 4					1			N	1		368
SERIAL IN 05	H	E06E1		1-02 *			D03- 4											368
SERIAL IN 05	H			1												1-0/0		368
SERIAL IN 06	H	F05J2		1-01 *			D11- 4					1			N	1		369
SERIAL IN 06	H	F06J2		1-02 *			D03- 5											369
SERIAL IN 06	H			1												1-0/0		369
SERIAL IN 07	H	C05J2		1-01 *			D11- 4					1			N	1		370
SERIAL IN 07	H	C06J2		1-02 *			D03- 5											370
SERIAL IN 07	H			1												1-0/0		370
SERIAL IN 08	H	B05P2		1-01 *			D11- 4					1			N	0-7/0		371
SERIAL IN 08	H	E07L2		1-02 *			D04- 2											371
SERIAL IN 08	H			1												0-7/0		371
SERIAL IN 09	H	C05A1		1-01 *			D11- 4					1			N	11-5/0		372
SERIAL IN 09	H	F07V1		1-02 *			D04- 2											372
SERIAL IN 09	H			1												11-5/0		372
SERIAL IN 10	H	B05U2		1-01 *			D11- 4					1			N	9-3/0		373
SERIAL IN 10	H	E07V2		1-02 *			D04- 3											373
SERIAL IN 10	H			1												9-3/0		373
SERIAL IN 11	H	B05V2		1-01 *			D11- 4					1			N	3-5/0		374
SERIAL IN 11	H	C07V1		1-02 *			D04- 3											374
SERIAL IN 11	H			1												3-5/0		374
SERIAL IN 12	H	A05L1		1-01 *			D11- 4					1			N	9-3/0		375
SERIAL IN 12	H	D07L1		1-02 *			D04- 4											375
SERIAL IN 12	H			1												9-3/0		375
SERIAL IN 13	H	A05J1		1-01 *			D11- 4					1			N	11-3/0		376
SERIAL IN 13	H	E07E1		1-02 *			D04- 4											376
SERIAL IN 13	H			1												11-3/0		376

DH11.C RUN NAME	A/P	WRP200.V34(62)-1		31-JUL-75		Q	DRAW	RV	RG	Y	X	Z	REMARKS	12-JUL-76	16136 NC FLAG	PAGE 37		RUN NUMBER
		PIN NAME	ORDER PIN	BAY - ORDER	Q											LENGTH	EXCEPTIONS	
SERIAL IN 14	H	A05E2		1-01 *			D11- 4					1			N	15-1/0		377
SERIAL IN 14	H	F07J2		1-02 *			D04- 5											377
SERIAL IN 14	H			1												15-1/0		377
SERIAL IN 15	H	A05H1		1-01 *			D11- 4					1			N	7-1/0		378
SERIAL IN 15	H	C07J2		1-02 *			D04- 5											378
SERIAL IN 15	H			1												7-1/0		378
SERIAL OUT 00	H	E06A1		1-01 *			D03- 2					2			N	1		379
SERIAL OUT 00	H	E05A1		1-02 *			D11- 4					1			N	4-7/0		379
SERIAL OUT 00	H	F03L2		1-03 *			D12- 2											379
SERIAL OUT 00	H			1												5-7/0		379
SERIAL OUT 01	H	F03J2		1-01 *			D12- 2					1			N	1-3/0		380
SERIAL OUT 01	H	F05P2		1-02 *			D11- 4					2			N	1		380
SERIAL OUT 01	H	F06P2		1-03 *			D03- 2											380
SERIAL OUT 01	H			1												2-3/0		380
SERIAL OUT 02	H	E06R1		1-01 *			D03- 3					2			N	1		381
SERIAL OUT 02	H	E05R1		1-02 *			D11- 4					1			N	3-7/0		381
SERIAL OUT 02	H	F03R2		1-03 *			D12- 2											381
SERIAL OUT 02	H			1												4-7/0		381
SERIAL OUT 03	H	C06N1		1-01 *			D03- 3					2			N	1		382
SERIAL OUT 03	H	C05N1		1-02 *			D11- 4					1			N	9-5/0		382
SERIAL OUT 03	H	F03T2		1-03 *			D12- 2											382
SERIAL OUT 03	H			1												10-5/0		382
SERIAL OUT 04	H	D06A1		1-01 *			D03- 4					2			N	1		383
SERIAL OUT 04	H	D05A1		1-02 *			D11- 4					1			N	0-1/0		383
SERIAL OUT 04	H	F03R1		1-03 *			D12- 2											383
SERIAL OUT 04	H			1												9-1/0		383
SERIAL OUT 05	H	D06P2		1-01 *			D03- 4					2			N	1		384
SERIAL OUT 05	H	D05P2		1-02 *			D11- 4					1			N	5-5/0		384
SERIAL OUT 05	H	F03E2		1-03 *			D12- 2											384
SERIAL OUT 05	H			1												6-5/0		384
SERIAL OUT 06	H	F03S1		1-01 *			D12- 2					1			N	2-3/0		385
SERIAL OUT 06	H	F05D2		1-02 *			D11- 4					2			N	1		385
SERIAL OUT 06	H	F06D2		1-03 *			D03- 5											385
SERIAL OUT 06	H			1												3-3/0		385
SERIAL OUT 07	H	C06B1		1-01 *			D03- 5					2			N	1		386
SERIAL OUT 07	H	C05B1		1-02 *			D11- 4					1			N	10-3/0		386
SERIAL OUT 07	H	F03L1		1-03 *			D12- 2											386
SERIAL OUT 07	H			1												11-3/0		386
SERIAL OUT 08	H	B05N2		1-01 *			D11- 4					1			N	6-7/0		387
SERIAL OUT 08	H	D03P2		1-02 *			D12- 3					2			N	2-7/0		387
SERIAL OUT 08	H	E07A1		1-03 *			D04- 2											387
SERIAL OUT 08	H			1												9-6/0		387

DH11.C														12-JUL-76		16136		PAGE 40		RUN NUMBER
RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC FLAG	LENGTH	EXCEPTIONS					
TSMT LINE 00	H	D05H2		1-01 *		D11- 1					1		N	2-5/8		414				
TSMT LINE 00	H	E06C1		1-02 *		D03- 2					2		N	1-3/8		414				
TSMT LINE 00	H	E04J2		1-03 *		D13- 1								4-0/8		414				
TSMT LINE 00	H			1												414				
TSMT LINE 01	H	D05J2		1-01 *		D11- 1					2		N	3-7/8		415				
TSMT LINE 01	H	E04M2		1-02 *		D13- 1					1		N	4-3/8		415				
TSMT LINE 01	H	F06N2		1-03 *		D03- 2								8-2/8		415				
TSMT LINE 01	H			1												415				
TSMT LINE 02	H	D05F1		1-01 *		D11- 1					1		N	4-3/8		416				
TSMT LINE 02	H	E06S1		1-02 *		D03- 3					2		N	1-3/8		416				
TSMT LINE 02	H	E04R1		1-03 *		D13- 1								5-6/8		416				
TSMT LINE 02	H			1												416				
TSMT LINE 03	H	C06P1		1-01 *		D03- 3					2		N	2-7/8		417				
TSMT LINE 03	H	D05H1		1-02 *		D11- 1					1		N	4-3/8		417				
TSMT LINE 03	H	E04U2		1-03 *		D13- 1								7-2/8		417				
TSMT LINE 03	H			1												417				
TSMT LINE 04	H	D06C1		1-01 *		D03- 4					2		N	1-2/8		418				
TSMT LINE 04	H	D05J1		1-02 *		D11- 1					1		N	6-7/8		418				
TSMT LINE 04	H	F04S2		1-03 *		D13- 1								8-1/8		418				
TSMT LINE 04	H			1												418				
TSMT LINE 05	H	D06P2		1-01 *		D03- 4					2		N	1-3/8		419				
TSMT LINE 05	H	D05K1		1-02 *		D11- 1					1		N	6-5/8		419				
TSMT LINE 05	H	F04P1		1-03 *		D13- 1								9-0/8		419				
TSMT LINE 05	H			1												419				
TSMT LINE 06	H	D05M1		1-01 *		D11- 1					1		N	5-1/8		420				
TSMT LINE 06	H	F06C1		1-02 *		D03- 5					2		N	1-7/8		420				
TSMT LINE 06	H	F04H1		1-03 *		D13- 1								7-0/8		420				
TSMT LINE 06	H			1												420				
TSMT LINE 07	H	C06D2		1-01 *		D03- 5					2		N	4-7/8		421				
TSMT LINE 07	H	D05N1		1-02 *		D11- 1					1		N	4-7/8		421				
TSMT LINE 07	H	F04D2		1-03 *		D13- 1								9-6/8		421				
TSMT LINE 07	H			1												421				
TSMT LINE 08	H	C05M1		1-01 *		D11- 1					1		N	5-5/8		422				
TSMT LINE 08	H	E07C1		1-02 *		D04- 2					2		N	2-3/8		422				
TSMT LINE 08	H	E04J1		1-03 *		D13- 1								8-0/8		422				
TSMT LINE 08	H			1												422				
TSMT LINE 09	H	C05L1		1-01 *		D11- 1					1		N	6-1/8		423				
TSMT LINE 09	H	E04L1		1-02 *		D13- 1					2		N	5-1/8		423				
TSMT LINE 09	H	F07N2		1-03 *		D04- 2								11-2/8		423				
TSMT LINE 09	H			1												423				
TSMT LINE 10	H	C05K1		1-01 *		D11- 1					1		N	6-3/8		424				
TSMT LINE 10	H	E04P2		1-02 *		D13- 1					2		N	1-5/8		424				
TSMT LINE 10	H	E07B1		1-03 *		D04- 3								8-0/8		424				
TSMT LINE 10	H			1												424				

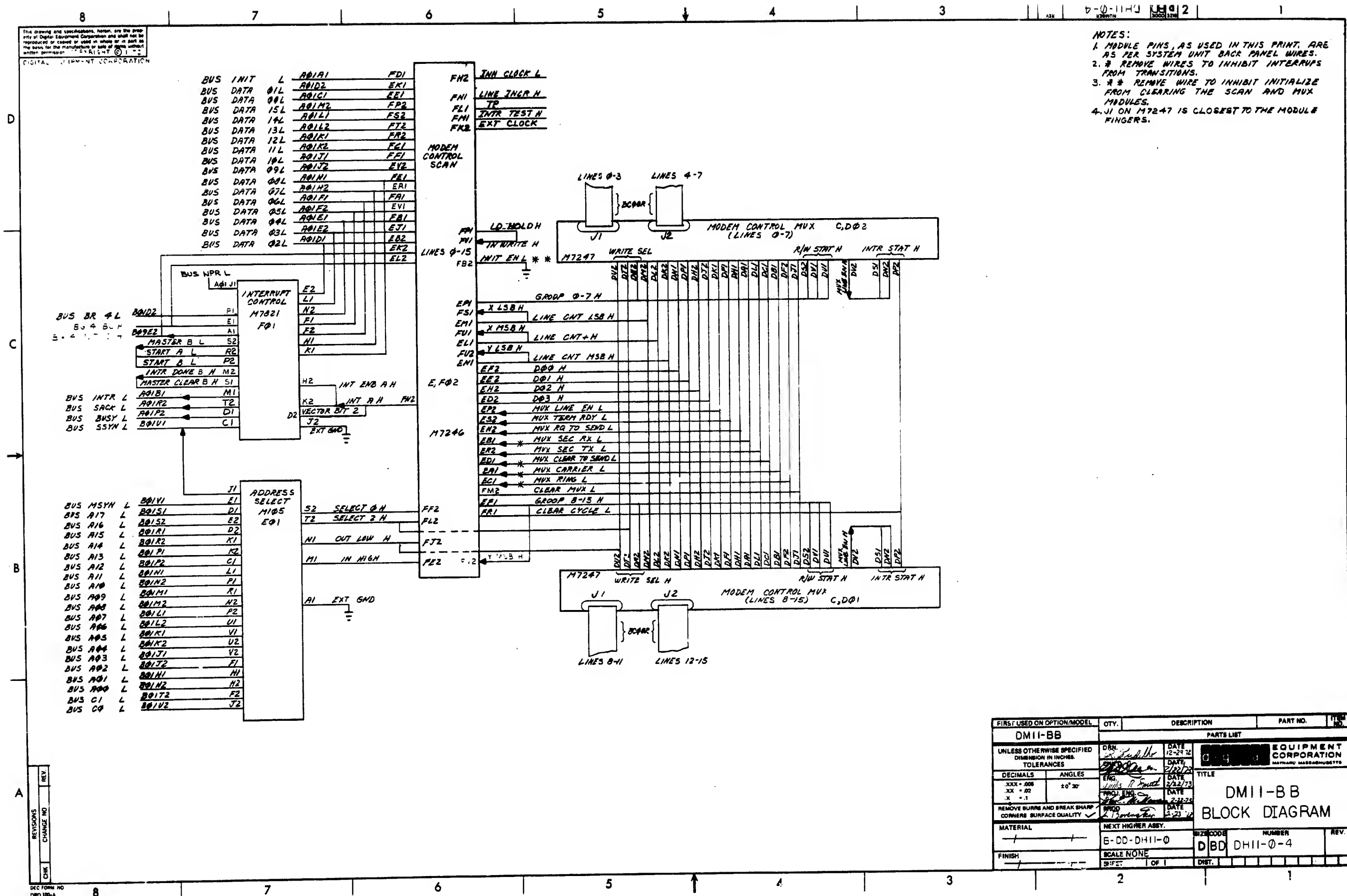
DH11.C RUN NAME	A/P	WRP288.V34(62)-1 PIN NAME	31-JUL-75 ORDER PIN	RAY - ORDER	Q	DRAW OPT	PV	RG	Y	X	Z	REMARKS	12-JUL-76	16136 NC LENGTH FLAG	PAGE 41 EXCEPTIONS	RUN NUMBER
TSMT LINE 11	H	C07P1		1-P1 *		D04- 3					2			N	1-2/8	425
TSMT LINE 11	H	C05L2		1-P2 *		D11- 1					1			N	6-7/8	425
TSMT LINE 11	H	E04T2		1-P3 *		D13- 1									8-1/8	425
TSMT LINE 11	H			1												425
TSMT LINE 12	H	C05K2		1-P1 *		D11- 1					2			N	3-1/8	426
TSMT LINE 12	H	D07C1		1-P2 *		D04- 4					1			N	7-1/8	426
TSMT LINE 12	H	F04D1		1-P3 *		D13- 1									10-2/8	426
TSMT LINE 12	H			1												426
TSMT LINE 13	H	C05U1		1-P1 *		D11- 1					2			N	3-7/8	427
TSMT LINE 13	H	D07P2		1-P2 *		D04- 4					1			N	6-1/8	427
TSMT LINE 13	H	F04F2		1-P3 *		D13- 1									10-0/8	427
TSMT LINE 13	H			1												427
TSMT LINE 14	H	C05S1		1-P1 *		D11- 1					1			N	7-7/8	428
TSMT LINE 14	H	F07C1		1-P2 *		D04- 5					2			N	2	428
TSMT LINE 14	H	F04V2		1-P3 *		D13- 1									9-7/8	428
TSMT LINE 14	H			1												428
TSMT LINE 15	H	C07D2		1-P1 *		D04- 5					2			N	2-2/8	429
TSMT LINE 15	H	C05R1		1-P2 *		D11- 1					1			N	8-7/8	429
TSMT LINE 15	H	F04R1		1-P3 *		D13- 1									11-1/8	429
TSMT LINE 15	H			1												429
TIME OUT (0)	H	A04K2		1-P1 *		D13- 1					1			N	1-3/8	430
TIME OUT (0)	H	A03B2		1-P2 *		D12- 1					2			N	3-1/8	430
TIME OUT (0)	H	B02K1		1-P3 *		D07					1			N	10-5/8	430
TIME OUT (0)	H	E05R2		1-P4 *		D11- 2									15-1/8	430
TIME OUT (0)	H			1												430
TIME OUT (1)	H	B02L1				D07									1-PIN RUN	431
TP	H	F02L1				D09									1-PIN RUN	432
TP CLR WRITE	H	F04K1				D13- 2									1-PIN RUN	433
TP CONT STROBE INT (1)	H	E04N2				D13- 1									1-PIN RUN	434
TP EC DLY	H	F04L1				D13- 2									1-PIN RUN	435
TP EC PLB	H	F04L2				D13- 2									1-PIN RUN	436
TP EC+ES SBYN INHIBIT	H	F04F1				D13- 1									1-PIN RUN	437
TP MASTER CL SBYN		F04C1				D13- 1									1-PIN RUN	438
TP NPR COMP	L	F04K2				D13- 2									1-PIN RUN	439
TP SCR 00 CLEAR	H	F05K1				D11- 2									1-PIN RUN	440
TP SCR 00 LOAD	H	C05H1				D11- 2									1-PIN RUN	441
TP BCR HIGH BYTE LOAD	H	E05P2				D11- 2									1-PIN RUN	442



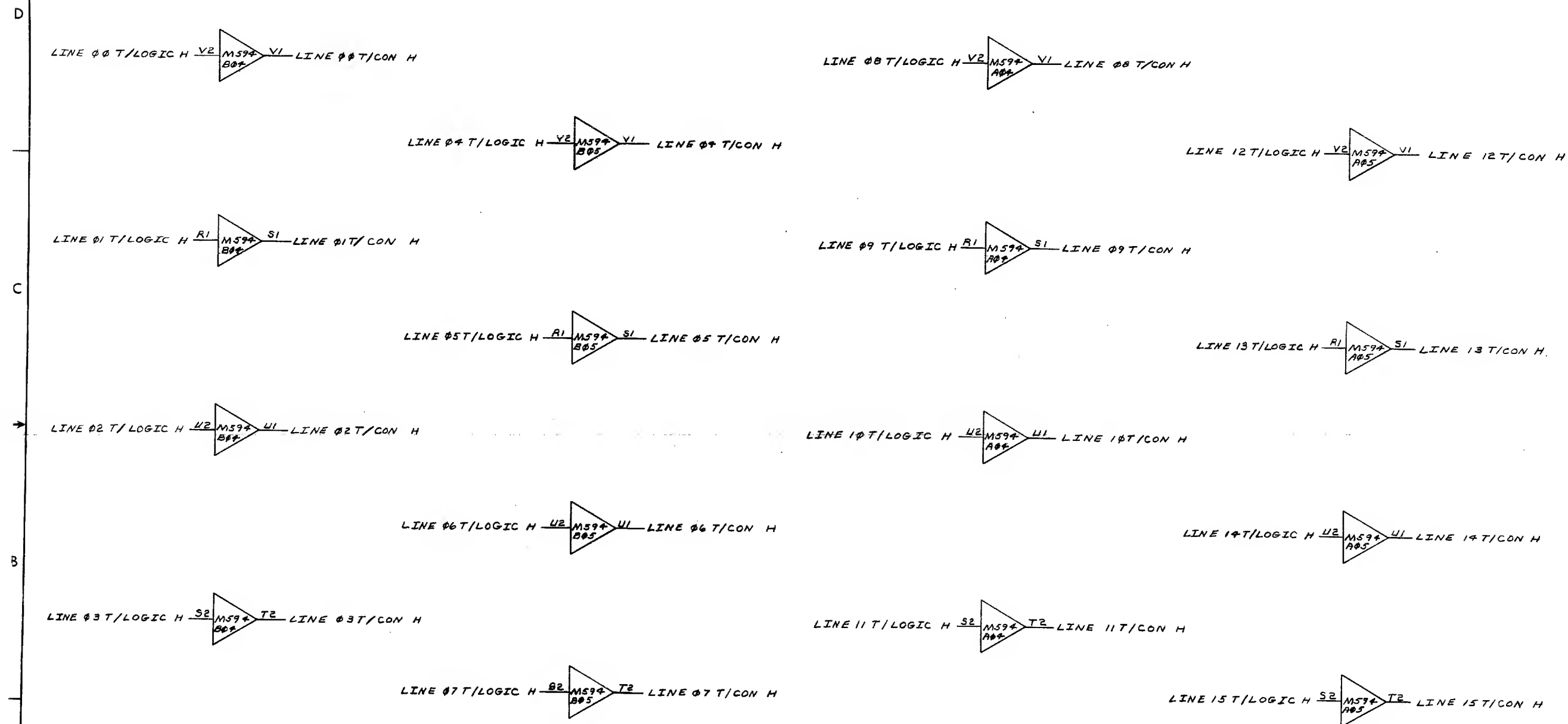
- NOTES:
1. IF END OF BUS REPLACE M920 WITH M930.
 2. IF LAST UNIT IN BASIC BOX REPLACE M920 WITH BC11A CABLE END WHEN EXPANDING TO PHERIPHERAL BOX.
 3. IF FIRST UNIT IN EXPANDER BOX REPLACE M920 WITH BC11A CABLE END
 4. E02 MUST BE A 6727 GRANT CCNTINUITY MODULE IF NO MODEM CONTROL MODULE SET IS INSTALLED.
→ DM11-BB MODEM CONTROL OPTION USED WITH THE DH11-AA AND DH11-AC OPTIONS.
 5. MODULE SLOTS PROVIDED FOR ADDITIONAL CLOCK RATES.
 6. FOR DIAGNOSTIC CHECKOUT REPLACE M971 WITH M974. THIS NOTE DOES NOT APPLY TO THE DH11-AD AND DH11-AE OPTIONS.
 7. THIS SLOT CONTAINS MODEM CONTROL MODULE M7807 FOR THE DH11-AD OPTION.
 8. THIS SLOT CONTAINS MODEM CONTROL MODULE M7808 FOR THE DH11-AD OPTION.
 9. THIS SLOT CONTAINS EIA CONVERTER AND PRIORITY MODULE M5906 FOR THE DH11-A AND DH11-AE OPTIONS.

CHK	DATE	BY	REV
1	12-28-72	J. McNamara	A
2	12-28-72	J. McNamara	B
3	12-28-72	J. McNamara	C
4	12-28-72	J. McNamara	D
5	12-28-72	J. McNamara	E
6	12-28-72	J. McNamara	F

FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP 11					
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES		PARTS LIST			
TOLERANCES		DRN	DATE	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
DECIMALS	ANGLES	CHK'D	DATE	TITLE	
.XXX ± .005	± 0° 30'	ENG	DATE	MODULE UTILIZATION	
.XX ± .02		PROJ. ENG.	DATE	SIZE CODE	
.X ± .1		PROD.	DATE	NUMBER	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY 7		1	2-23-72	REV.	
MATERIAL		NEXT HIGHER ASSY.		D	
FINISH		B-DD-DH11-0		D	
		SCALE NONE		D	
		SHEET		D	



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FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP 11				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES				
DECIMALS	ANGLES	DRN. Pgs. k	DATE	DATE
.XXX = .005	±0° 30	CHK'D.	6-3-71	6-5-71
.XX = .02		ENG.		
.X = .1		PROJ. ENG.		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		PROD.	DATE	DATE
		Paul Hume	12/2/71	
MATERIAL		NEXT HIGHER ASSY.		
FINISH		A-ML-DM11-A		
		SCALE	SHEET	1 OF 2
		SHEET		

PARTS LIST	
EQUIPMENT CORPORATION NATURAL MASSACHUSETTS	
TITLE DM11-DB TRANSMIT & RECEIVE	
SIZE CODE DBS	NUMBER DM11-A-08
REV.	

REVISIONS
CHANGE NO.
CHK

DEC FORM NO
DRC 102-B

8

7

6

5

4

3

2

1

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LINE 00 R/CON H $\frac{1}{2}$ M594 $\frac{1}{805}$ DI LINE 00 R/LOGIC H

LINE 08 R/CON H $\frac{1}{2}$ M594 $\frac{1}{805}$ DI LINE 08 R/LOGIC H

LINE 04 R/CON H $\frac{1}{2}$ M594 $\frac{1}{805}$ DI LINE 04 R/LOGIC H

LINE 12 R/CON H $\frac{1}{2}$ M594 $\frac{1}{805}$ DI LINE 12 R/LOGIC H

LINE 01 R/CON H $\frac{1}{4}$ M594 $\frac{1}{805}$ KI LINE 01 R/LOGIC H

LINE 09 R/CON H $\frac{1}{4}$ M594 $\frac{1}{805}$ KI LINE 09 R/LOGIC H

LINE 05 R/CON H $\frac{1}{4}$ M594 $\frac{1}{805}$ KI LINE 05 R/LOGIC H

LINE 13 R/CON H $\frac{1}{4}$ M594 $\frac{1}{805}$ KI LINE 13 R/LOGIC H

LINE 02 R/CON H $\frac{1}{4}$ M594 $\frac{1}{805}$ HI LINE 02 R/LOGIC H

LINE 10 R/CON H $\frac{1}{4}$ M594 $\frac{1}{805}$ HI LINE 10 R/LOGIC H

LINE 06 R/CON H $\frac{1}{4}$ M594 $\frac{1}{805}$ HI LINE 06 R/LOGIC H

LINE 14 R/CON H $\frac{1}{4}$ M594 $\frac{1}{805}$ HI LINE 14 R/LOGIC H

LINE 03 R/CON H $\frac{1}{2}$ M594 $\frac{1}{805}$ BI LINE 03 R/LOGIC H

LINE 11 R/CON H $\frac{1}{2}$ M594 $\frac{1}{805}$ BI LINE 11 R/LOGIC H

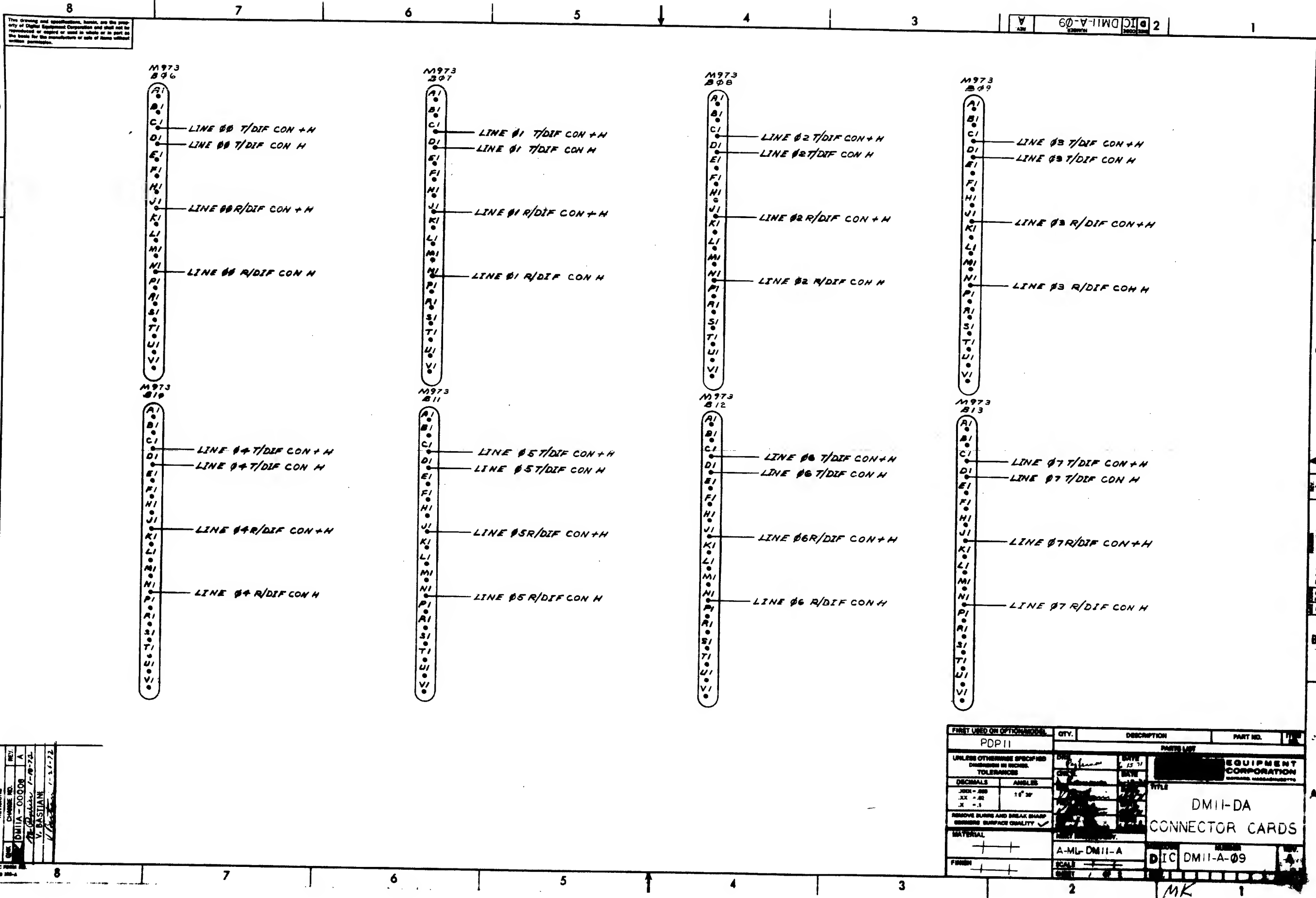
LINE 07 R/CON H $\frac{1}{2}$ M594 $\frac{1}{805}$ BI LINE 07 R/LOGIC H

LINE 15 R/CON H $\frac{1}{2}$ M594 $\frac{1}{805}$ BI LINE 15 R/LOGIC H

REVISIONS
CHANGE NO.
CHK
REV

DEC FORM NO
DTH 100-A

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP 11				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES				
TOLERANCES				
DECIMALS	ANGLES	DATE		
.XXX = .008	$\pm 0^{\circ} 30'$	DATE	DATE	
.XX = .02		DATE	DATE	
.X = .1		DATE	DATE	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY				
MATERIAL				
NEXT HIGHER ASSY.				
FINISH				
SCALE				
SHEET 2 OF 2				
DATE				
DST.				
PARTS LIST				
DIGITAL EQUIPMENT CORPORATION BAYFRONT, MASSACHUSETTS				
TITLE				
DM11-DB TRANSMIT & RECEIVE				
SIZE CODE				
NUMBER				
REV.				
DBS DM11-A-08				
ML				



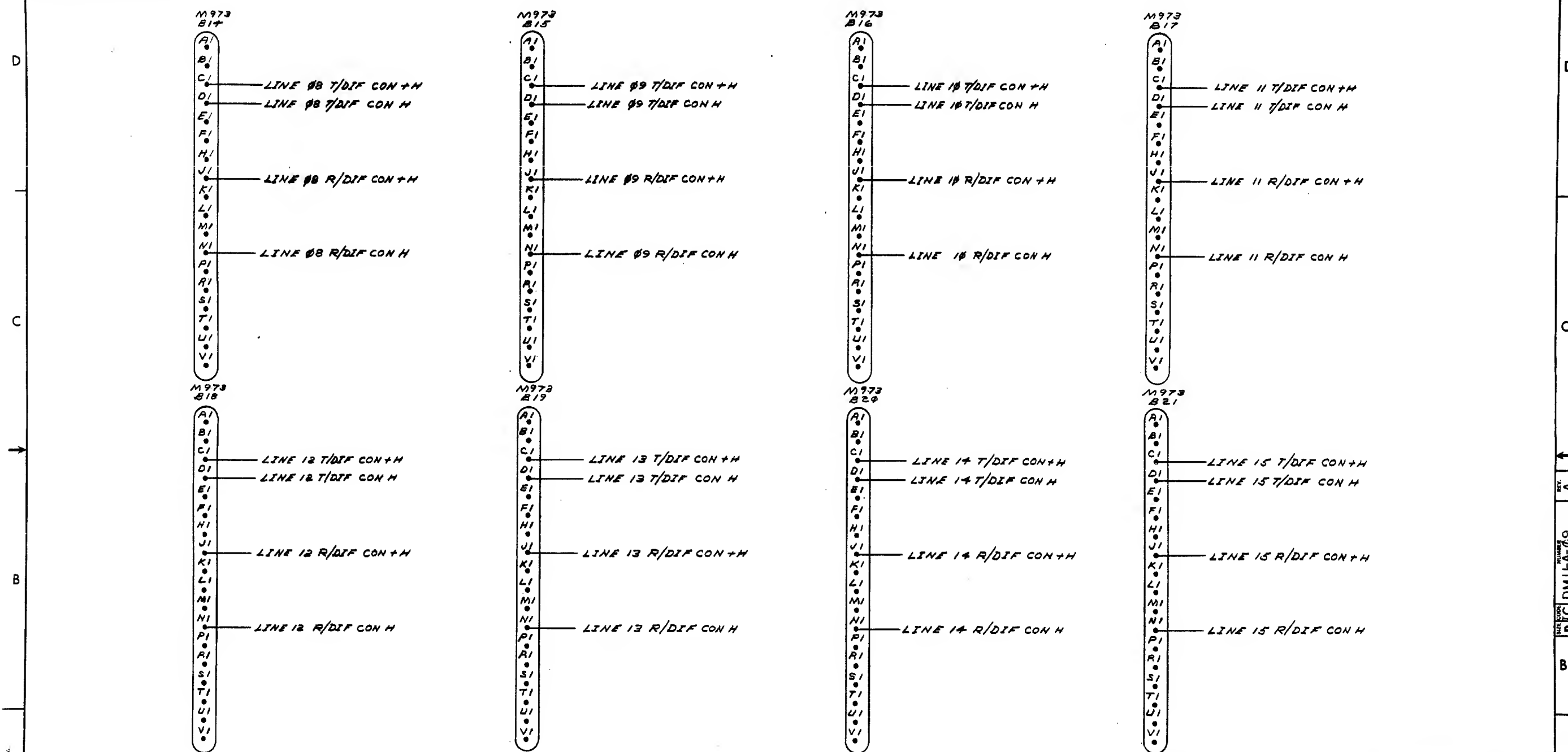
FIRST USED ON OPTIMIZATION		QTY.	DESCRIPTION	PART NO.
PDP11				
UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES TOLERANCES				
DECIMALS	ANGLES			
.XX - .00	1° 30'			
.XX - .01				
.X - .1				
REMOVE BURRS AND BREAK SHARP EDGES SURFACE QUALITY				
MATERIAL				
FINISH				
A-MU-DMII-A				
SCALE				
DATE				
1-10-72				
MK				

EQUIPMENT CORPORATION

DMII-DA
CONNECTOR CARDS

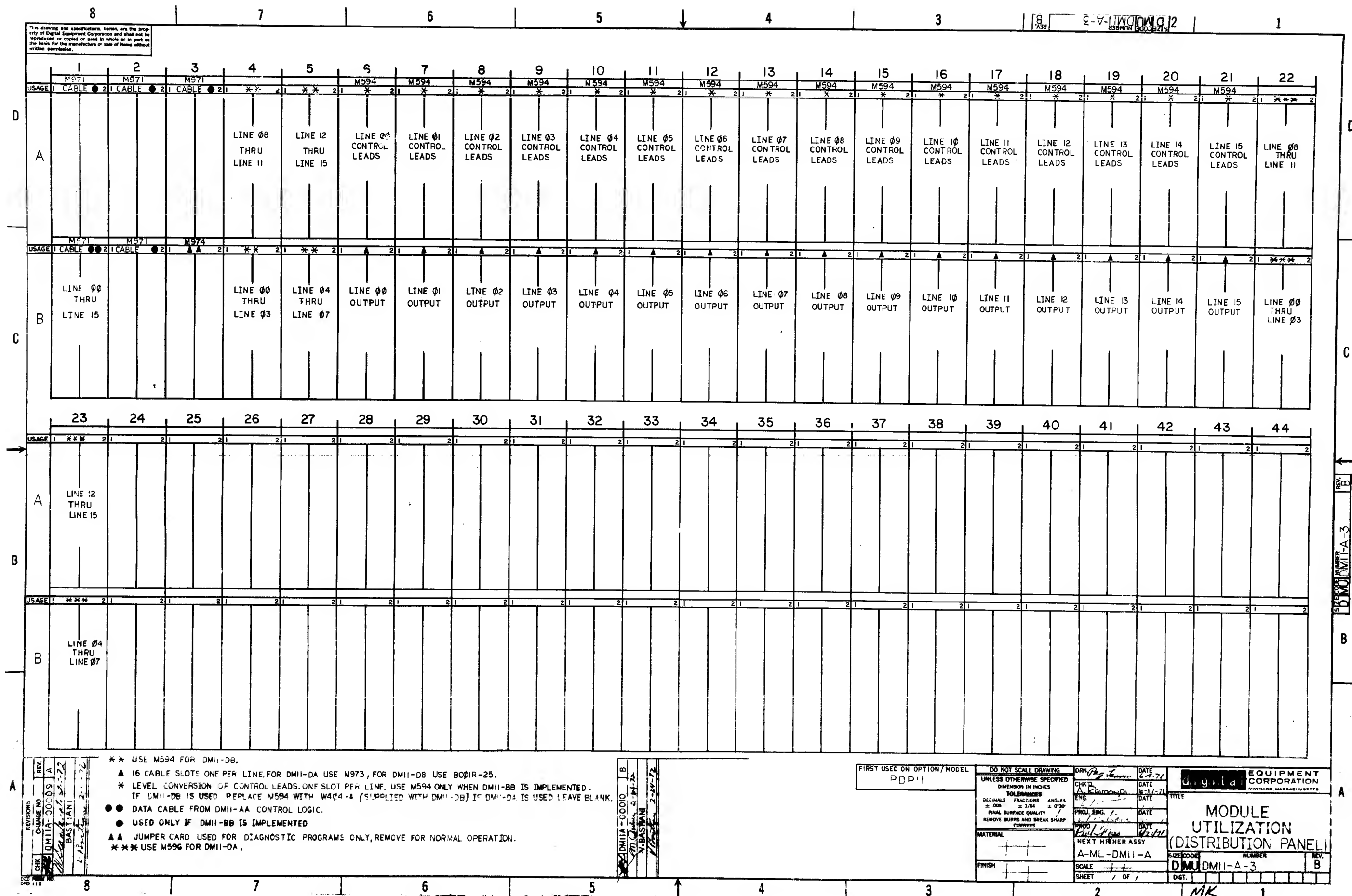
DMII-A-09

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REV.	CHANGE NO.
1	1

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP11				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES				
DECIMALS	ANGLES	DATE		
.XXX = .005	±0° 30'	6-15-71		
.XX = .02		DATE		
.X = .1		6-15-71		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY				
MATERIAL				
FINISH				
NEXT HIGHER ASSY.				
A-ML-DMII-A				
SCALE				
SHEET 2 OF 2				
DATE				
6-15-71				
TITLE				
DMII-DA CONNECTOR CARDS				
SIZE CODE				
D1C				
NUMBER				
DMII-A-09				
REV.				
A				



DRWG NO	REV LTR
K-WL-DMII-A-5	E

REVISIONS			
REV LTR	ECO NO	DATE	ENG
A	DMIIA-3-3-71	3-3-71	VJ
B	DMIIA-2-24-72	2-24-72	VJ
C	DMIIA-3-1-74	3-1-74	VJ
D	DMIIA-8-73	8-73	VJ
E	DMIIA-9-1-74	9-1-74	VJ

DRAWN <i>Cl. Hinds</i>	DATE 5/25/71	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	TITLE WIRE LIST DISTRIBUTION PNL	
CHECKED <i>K. Hinds</i>	DATE 6-1-71		FOR TAPE* FILE*	
ENG <i>V. Barton</i>	DATE 6/1/71		SIZE CODE DWG NO	
PROJ ENG <i>V. Barton</i>	DATE 6/1/71		REV LTR	
PROD <i>Paul Hinds</i>	DATE 6/3/71	ASSY NO D-AD-7008443-0-0	K WL DMII-A-5	E
SCALE —#—		SHEET 1 OF 1		DIST.

MMDDPP.E (RUN NAME)	HND28A.V23(P3) 05/24/74	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	KV	PG	Y	X	Z	REMARKS	24-SEP-74 LENGTH	0152 EXCEPTIONS	PAGE 3 RHH NUMBER
01DTR/LOGIC			AU1N1		1-U1 *							1				21
01DTR/LOGIC			AU7P2		1-U2 *											21
01DTR/LOGIC					1									5-4/8		21
01REQ TO SEND/CON			AU7T2		1-U1 *							2				22
01REQ TO SEND/CON			HU7L2		1-U2 *											22
01REQ TO SEND/CON					1									4-2/8		22
01REQ TO SEND/LOGIC			A01P1		1-U1 *							1				23
01REQ TO SEND/LOGIC			AU7S2		1-U2 *											23
01REQ TO SEND/LOGIC					1									5-6/8		23
01RING/CON			AU7K2		1-U1 *							1				24
01RING/CON			B07M2		1-U2 *											24
01RING/CON					1									5-2/8		24
01RING/LOGIC			AU1M1		1-U1 *							1				25
01RING/LOGIC			AU7C1		1-U2 *											25
01RING/LOGIC					1									5-6/8		25
01SEC RX/LOGIC			AU1V1		1-U1 *							1				26
01SEC RX/LOGIC			AU7E1		1-U2 *											26
01SEC RX/LOGIC					1									6-0/8		26
01SEC TX/LOGIC			A01U1		1-U1 *							1				27
01SEC TX/LOGIC			A07U2		1-U2 *											27
01SEC TX/LOGIC					1									5-4/8		27
01SUP REC/CON			AU7L2		1-O1 *							1				28
01SUP REC/CON			HU7F1		1-U2 *											28
01SUP REC/CON					1									4-6/8		28
01SUP TRAN/CON			AU7U1		1-O1 *							1				29
01SUP TRAN/CON			HU7E1		1-O2 *											29
01SUP TRAN/CON					1									3-4/8		29
02CARRIER/CON			A08H2		1-O1 *							1				30
02CARRIER/CON			B08P2		1-J2 *											30
02CARRIER/CON					1									5-6/8		30
02CARRIER/LOGIC			A01J2		1-U1 *							1				31
02CARRIER/LOGIC			A08B1		1-U2 *											31
02CARRIER/LOGIC					1									6-0/8		31
02CLEAR TO SEND/CON			A08M2		1-U1 *							1				32
02CLEAR TO SEND/CON			B08K2		1-U2 *											32
02CLEAR TO SEND/CON					1									4-6/8		32

DM11DP.E RUN NAME	HND288.V23(23) 05/24/74 A/P PIN ORDER PIN ORDER	Q DRAW RV PG Y X Z	REMARKS	24-SEP-74 LENGTH	0152 EXCEPTIONS	PAGE 4 RUN NUMBER
02CLEAR TO SEND/LOGIC	A01H2	1-01 *				33
02CLEAR TO SEND/LOGIC	A08F2	1-02 *				33
02CLEAR TO SEND/LOGIC		1		6-0/8		33
02DTR/CON	A08K2	1-01 *				34
02DTR/CON	B08R2	1-02 *				34
02DTR/CON		1		5-0/8		34
02DTR/LOGIC	A01C2	1-01 *				35
02DTR/LOGIC	A08P2	1-02 *				35
02DTR/LOGIC		1		6-2/8		35
02REQ TO SEND/CON	A08T2	1-01 *				36
02REQ TO SEND/CON	B08L2	1-02 *				36
02REQ TO SEND/CON		1		4-2/8		36
02REQ TO SEND/LOGIC	A01F2	1-01 *				37
02REQ TO SEND/LOGIC	A08S2	1-02 *				37
02REQ TO SEND/LOGIC		1		6-2/8		37
02RING/CON	A08K2	1-01 *				38
02RING/CON	B08M2	1-02 *				38
02RING/CON		1		5-2/8		38
02RING/LOGIC	A01D2	1-01 *				39
02RING/LOGIC	A08C1	1-02 *				39
02RING/LOGIC		1		5-4/8		39
02SEC RX LOGIC	A01L2	1-01 *				40
02SEC RX LOGIC	A08E1	1-02 *				40
02SEC RX LOGIC		1		5-6/8		40
02SEC TX LOGIC	A01K2	1-01 *				41
02SEC TX LOGIC	A08U2	1-02 *				41
02SEC TX LOGIC		1		6-2/8		41
02SUP REC/CON	A08L2	1-01 *				42
02SUP REC/CON	B08F1	1-02 *				42
02SUP REC/CON		1		4-6/8		42
02SUP TRAN/CON	A08U1	1-01 *				43
02SUP TRAN/CON	B08E1	1-02 *				43
02SUP TRAN/CON		1		3-4/8		43
03CARRIER/CON	A04H2	1-01 *				44
03CARRIER/CON	B04P2	1-02 *				44
03CARRIER/CON		1		5-6/8		44

DM11DP.E RUN NAME	HN0288.V23(23) A/P PIN NAME	05/24/74 ORDER PIN	RAY - ORDER	0	DRAW	RV	PG	Y	X	/	REMARKS	24-SEP-74 LENGTH	0152 EXCEPTIONS	PAGE 5 KIJH NUMBER
03CARRIER/LOGIC	A01S2		1-01 *							1				45
03CARRIER/LOGIC	A04B1		1-02 *											45
03CARRIER/LOGIC			1									7-0/8		45
03CLEAR TO SEND/CON	A04MP		1-01 *							1				46
03CLEAR TO SEND/CON	B04K2		1-02 *											46
03CLEAR TO SEND/CON			1									4-6/8		46
03CLEAR TO SEND/LOGIC	A01K2		1-01 *							1				47
03CLEAR TO SEND/LOGIC	A04FP		1-02 *											47
03CLEAR TO SEND/LOGIC			1									6-6/8		47
03DTR/CON	A09R2		1-01 *							1				48
03DTR/CON	B09R2		1-02 *											48
03DTR/CON			1									5-0/8		48
03DTR/LOGIC	A01NP		1-01 *							1				49
03DTR/LOGIC	A09P2		1-02 *											49
03DTR/LOGIC			1									6-2/8		49
03REQ TO SEND/CON	A04T2		1-01 *							2				50
03REQ TO SEND/CON	B09L2		1-02 *											50
03REQ TO SEND/CON			1									4-2/8		50
03REQ TO SEND/LOGIC	A01P2		1-01 *							1				51
03REQ TO SEND/LOGIC	A04S2		1-02 *											51
03REQ TO SEND/LOGIC			1									6-4/8		51
03RING/CON	A04K2		1-01 *							1				52
03RING/CON	B09MP		1-02 *											52
03RING/CON			1									5-2/8		52
03RING/LOGIC	A01M2		1-01 *							1				53
03RING/LOGIC	A09C1		1-02 *											53
03RING/LOGIC			1									6-4/8		53
03SEC RX/LOGIC	A01V2		1-01 *							1				54
03SEC RX/LOGIC	A09E1		1-02 *											54
03SEC RX/LOGIC			1									6-6/8		54
03SEC TX/LOGIC	A01U2		1-01 *							1				55
03SEC TX/LOGIC	A09U2		1-02 *											55
03SEC TX/LOGIC			1									6-2/8		55
03SUP REC/CON	A09L2		1-01 *							1				56
03SUP REC/CON	B09F1		1-02 *											56
03SUP REC/CON			1									4-6/8		56

DM11DP.E RUN NAME	A/P	HND288.V23(23) PIN NAME	05/24/74 ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	24-SEP-74 LENGTH	0152 EXCEPTIONS	PAGE 6 RUN NUMBER
03SUP TRAN/CON		A0901		1-01 *							1				57
03SUP TRAN/CON		B04E1		1-02 *											57
03SUP TRAN/CON				1									3-4/8		57
04CARRIER/CON		A10H2		1-01 *							1				58
04CARRIER/CON		B10P2		1-02 *											58
04CARRIER/CON				1									5-6/8		58
04CARRIER/LOGIC		A02J1		1-01 *							1				59
04CARRIER/LOGIC		A10H1		1-02 *											59
04CARRIER/LOGIC				1									6-6/8		59
04CLEAR TO SEND/CON		A10M2		1-01 *							1				60
04CLEAR TO SEND/CON		B10K2		1-02 *											60
04CLEAR TO SEND/CON				1									4-6/8		60
04CLEAR TO SEND/LOGIC		A02H1		1-01 *							1				61
04CLEAR TO SEND/LOGIC		A10F2		1-02 *											61
04CLEAR TO SEND/LOGIC				1									6-6/8		61
04DTR/CON		A10R2		1-01 *							1				62
04DTR/CON		B10K2		1-02 *											62
04DTR/CON				1									5-0/8		62
04DTR/LOGIC		A02E1		1-01 *							1				63
04DTR/LOGIC		A10P2		1-02 *											63
04DTR/LOGIC				1									7-0/8		63
04REQ TO SEND/CON		A10T2		1-01 *							2				64
04REQ TO SEND/CON		B10L2		1-02 *											64
04REQ TO SEND/CON				1									4-2/8		64
04REQ TO SEND/LOGIC		A02F1		1-01 *							1				65
04REQ TO SEND/LOGIC		A10S2		1-02 *											65
04REQ TO SEND/LOGIC				1									7-0/8		65
04RING/CON		A10K2		1-01 *							1				66
04RING/CON		B10M2		1-02 *											66
04RING/CON				1									5-2/8		66
04RING/LOGIC		A02D1		1-01 *							1				67
04RING/LOGIC		A10C1		1-02 *											67
04RING/LOGIC				1									6-2/8		67
04SEC RX/LOGIC		A02L1		1-01 *							1				68
04SEC RX/LOGIC		A10E1		1-02 *											68
04SEC RX/LOGIC				1									6-4/8		68

[illegible]

DMLDP.L RUN NAME	HND288.V23(23) 05/24/74				Q	DRAW	RV	PG	Y	X	Z	REMARKS	24-SEP-74 LENGTH	0152 EXCEPTIONS	PAGE 8 RUN NUMBER
	A/P	PIN NAME	ORDER PIN	BAY - ORDER											
OSRING/LOGIC		A02M1		1-01 *							1				81
OSRING/LOGIC		A11C1		1-02 *											81
OSRING/LOGIC				1									7-2/8		81
OSSEC RX/LOGIC		A02V1		1-01 *							1				82
OSSEC RX/LOGIC		A11E1		1-02 *											82
OSSEC RX/LOGIC				1									7-4/8		82
OSSEC TX/LOGIC		A02U1		1-01 *							1				83
OSSEC TX/LOGIC		A11U2		1-02 *											83
OSSEC TX/LOGIC				1									7-0/8		83
OSSUP REC/CON		A11L2		1-01 *							1				84
OSSUP REC/CON		B11F1		1-02 *											84
OSSUP REC/CON				1									4-6/8		84
OSSUP TRAN/CON		A11U1		1-01 *							1				85
OSSUP TRAN/CON		B11E1		1-02 *											85
OSSUP TRAN/CON				1									3-4/8		85
OB CARRIER/CON		A12H2		1-01 *							1				86
OB CARRIER/CON		B12P2		1-02 *											86
OB CARRIER/CON				1									5-6/8		86
OB CARRIER/LOGIC		A02J2		1-01 *							1				87
OB CARRIER/LOGIC		A12B1		1-02 *											87
OB CARRIER/LOGIC				1									7-4/8		87
OB CLEAR TO SEND/CON		A12M2		1-01 *							1				88
OB CLEAR TO SEND/CON		B12K2		1-02 *											88
OB CLEAR TO SEND/CON				1									4-6/8		88
OB CLEAR TO SEND/LOGIC		A02H2		1-01 *							1				89
OB CLEAR TO SEND/LOGIC		A12F2		1-02 *											89
OB CLEAR TO SEND/LOGIC				1									7-4/8		89
OB DTR/CON		A12R2		1-01 *							1				90
OB DTR/CON		B12R2		1-02 *											90
OB DTR/CON				1									5-0/8		90
OB DTR/LOGIC		A02F2		1-01 *							1				91
OB DTR/LOGIC		A12P2		1-02 *											91
OB DTR/LOGIC				1									7-6/8		91
OB REQ TO SEND/CON		A12T2		1-01 *							2				92
OB REQ TO SEND/CON		B12L2		1-02 *											92
OB REQ TO SEND/CON				1									4-2/8		92

DM11DP.1 RUN NAME	HND28A.V23(23) A/P PIN NAME	05/24/74 ORDER PIN ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	24-SFP-74 LENGTH	0152 EXCEPTIONS	PAGE 4 RUN NUMBER
06REQ TO SEND/LOGIC	A02F2	1-01 *							1				93
06REQ TO SEND/LOGIC	A12S2	1-02 *											93
06REQ TO SEND/LOGIC		1									7-6/8		93
06RING/CON	A12K2	1-01 *							1				94
06RING/CON	B12M2	1-02 *											94
06RING/CON		1									5-2/8		94
06RING/LOGIC	A02D2	1-01 *							1				95
06RING/LOGIC	A12C1	1-02 *											95
06RING/LOGIC		1									7-0/8		95
06SEC RX/LOGIC	A02L2	1-01 *							1				96
06SEC RX/LOGIC	A12E1	1-02 *											96
06SEC RX/LOGIC		1									7-2/8		96
06SEC TX/LOGIC	A02K2	1-01 *							1				97
06SEC TX/LOGIC	A12U2	1-02 *											97
06SEC TX/LOGIC		1									7-6/8		97
06SUP REC/CON	A12L2	1-01 *							1				98
06SUP REC/CON	B12F1	1-02 *											98
06SUP REC/CON		1									4-6/8		98
06SUP TRAN/CON	A12U1	1-01 *							1				99
06SUP TRAN/CON	B12E1	1-02 *											99
06SUP TRAN/CON		1									3-4/8		99
07CARRIER/CON	A13H2	1-01 *							1				100
07CARRIER/CON	B13P2	1-02 *											100
07CARRIER/CON		1									5-6/8		100
07CARRIER/LOGIC	A02S2	1-01 *							1				101
07CARRIER/LOGIC	A13B1	1-02 *											101
07CARRIER/LOGIC		1									8-4/8		101
07CLEAR TO SEND/CON	A13M2	1-01 *							1				102
07CLEAR TO SEND/CON	B13K2	1-02 *											102
07CLEAR TO SEND/CON		1									4-6/8		102
07CLEAR TO SEND/LOGIC	A02R2	1-01 *							1				103
07CLEAR TO SEND/LOGIC	A13F2	1-02 *											103
07CLEAR TO SEND/LOGIC		1									8-2/8		103
07DTR/CON	A13R2	1-01 *							1				104
07DTR/CON	B13K2	1-02 *											104
07DTR/CON		1									5-0/8		104

DM11DP.1 RUN NAME	HH2288.V23(23) 05/24/74 A/P PIN ORDER PIN BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	24-SEP-74 LENGTH	0152 EXCEPTIONS	PAGE 10 RUN NUMBER
07DTR/LOGIC	A02N2							1				105
07DTR/LOGIC	A13P2											105
07DTR/LOGIC										7-6/8		105
07REQ TO SEND/CON	A13T2							2				106
07REQ TO SEND/CON	B13L2											106
07REQ TO SEND/CON										4-2/8		106
07REQ TO SEND/LOGIC	A02P2							1				107
07REQ TO SEND/LOGIC	A13S2											107
07REQ TO SEND/LOGIC										8-0/8		107
07RING/CON	A13K2							1				108
07RING/CON	B13M2											108
07RING/CON										5-2/8		108
07RING/LOGIC	A02M2							1				109
07RING/LOGIC	A13C1											109
07RING/LOGIC										8-0/8		109
07SEC RX/LOGIC	A02V2							1				110
07SEC RX/LOGIC	A13E1											110
07SEC RX/LOGIC										8-2/8		110
07SEC TX/LOGIC	A02U2							1				111
07SEC TX/LOGIC	A13U2											111
07SEC TX/LOGIC										7-6/8		111
07SUP REC/CON	A13L2							1				112
07SUP REC/CON	B13F1											112
07SUP REC/CON										4-6/8		112
07SUP TRAN/CON	A13U1							1				113
07SUP TRAN/CON	B13E1											113
07SUP TRAN/CON										3-4/8		113
08CARRIER/CON	A14H2							1				114
08CARRIER/CON	B14P2											114
08CARRIER/CON										5-6/8		114
08CARRIER/LOGIC	A03J1							1				115
08CARRIER/LOGIC	A14H1											115
08CARRIER/LOGIC										8-2/8		115
08CLEAR TO SEND/CON	A14M2							1				116
08CLEAR TO SEND/CON	B14K2											116
08CLEAR TO SEND/CON										4-6/8		116

DM11DP.E RUN NAME	HND288.V23(23) 05/24/74				Q	DRAW	KV	PG	Y	X	Z	REMARKS	24-SEP-74 LENGTH	0152 EXCEPTIONS	PAGE 11 RUN NUMBER
	A/P	PIN NAME	ORDER PIN	BAY - ORDER											
08CLEAR TO SEND/LOGIC		A03H1		1-01 *							1				117
08CLEAR TO SEND/LOGIC		A14F2		1-02 *											117
08CLEAR TO SEND/LOGIC				1									8-2/8		117
08DTR/CON		A14R2		1-01 *							1				118
08DTR/CON		B14R2		1-02 *									5-0/8		118
08DTR/CON				1											118
08DTR/LOGIC		A03E1		1-01 *							1				119
08DTR/LOGIC		A14F2		1-02 *									8-4/8		119
08DTR/LOGIC				1											119
08REQ TO SEND/CON		A14T2		1-01 *							2				120
08REQ TO SEND/CON		B14L2		1-02 *									4-2/8		120
08REQ TO SEND/CON				1											120
08REQ TO SEND/LOGIC		A03F1		1-01 *							1				121
08REQ TO SEND/LOGIC		A14S2		1-02 *									8-4/8		121
08REQ TO SEND/LOGIC				1											121
08RING/CON		A14K2		1-01 *							1				122
08RING/CON		B14M2		1-02 *									5-2/8		122
08RING/CON				1											122
08RING/LOGIC		A03D1		1-01 *							1				123
08RING/LOGIC		A14C1		1-02 *									7-6/8		123
08RING/LOGIC				1											123
08SEC RX/LOGIC		A03L1		1-01 *							1				124
08SEC RX/LOGIC		A14E1		1-02 *									8-0/8		124
08SEC RX/LOGIC				1											124
08SEC TX/LOGIC		A03K1		1-01 *							1				125
08SEC TX/LOGIC		A14U2		1-02 *									8-4/8		125
08SEC TX/LOGIC				1											125
08SUP REC/CON		A14L2		1-01 *							1				126
08SUP REC/CON		B14F1		1-02 *									4-6/8		126
08SUP REC/CON				1											126
08SUP TRAN/CON		A14U1		1-01 *							1				127
08SUP TRAN/CON		B14E1		1-02 *									3-4/8		127
08SUP TRAN/CON				1											127
09CARRIER/CON		A15M2		1-01 *							1				128
09CARRIER/CON		B15P2		1-02 *									5-6/8		128
09CARRIER/CON				1											128

DM11DP.E RUN NAME	HND288.V23(23) 05/24/74				Q	DRAW	KV	PG	Y	X	Z	REMARKS	24-SEP-74 LENGTH	0152 EXCEPTIONS	PAGE 12 RUN NUMBER
	A/P	PIN NAME	ORDER PIN	BAY - ORDER											
09CARRIER/LOGIC		A03S1		1-01 *							1				129
09CARRIER/LOGIC		A15B1		1-02 *									9-2/8		129
09CARRIER/LOGIC				1											129
09CLEAR TO SEND/CON		A15M2		1-01 *							1				130
09CLEAR TO SEND/CON		B15K2		1-02 *									4-6/8		130
09CLEAR TO SEND/CON				1											130
09CLEAR TO SEND/LOGIC		A03R1		1-01 *							1				131
09CLEAR TO SEND/LOGIC		A15F2		1-02 *									9-0/8		131
09CLEAR TO SEND/LOGIC				1											131
09DTR/CON		A15R2		1-01 *							1				132
09DTR/CON		B15R2		1-02 *									5-0/8		132
09DTR/CON				1											132
09DTR/LOGIC		A03N1		1-01 *							1				133
09DTR/LOGIC		A15P2		1-02 *									8-4/8		133
09DTR/LOGIC				1											133
09REQ TO SEND/CON		A15T2		1-01 *							2				134
09REQ TO SEND/CON		B15L2		1-02 *									4-2/8		134
09REQ TO SEND/CON				1											134
09REQ TO SEND/LOGIC		A03P1		1-01 *							1				135
09REQ TO SEND/LOGIC		A15S2		1-02 *									8-6/8		135
09REQ TO SEND/LOGIC				1											135
09RING/CON		A15K2		1-01 *							1				136
09RING/CON		B15N2		1-02 *									5-2/8		136
09RING/CON				1											136
09RING/LOGIC		A03M1		1-01 *							1				137
09RING/LOGIC		A15C1		1-02 *									8-6/8		137
09RING/LOGIC				1											137
09SEC RX/LOGIC		A03V1		1-01 *							1				138
09SEC RX/LOGIC		A15E1		1-02 *									9-0/8		138
09SEC RX/LOGIC				1											138
09SEC TX/LOGIC		A03O1		1-01 *							1				139
09SEC TX/LOGIC		A15U2		1-02 *									8-4/8		139
09SEC TX/LOGIC				1											139
09SUP REC/CON		A15L2		1-01 *							1				140
09SUP REC/CON		B15F1		1-02 *									4-6/8		140
09SUP REC/CON				1											140

ELUMENI CORPORATION

DM11DP.E RUN NAME	A/P	HND28A.V27(23) PIN NAME	05/24/74 ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	24-SEP-74 LENGTH	0152 EXCEPTIONS	PAGE 1 RUN NUMBER
09SUP TRAN/CON		A15U1		1-01 *							1				141
09SUP TRAN/CON		B15E1		1-02 *										141	141
09SUP TRAN/CON				1									3-4/8		141
10ACP		A10T1		1-01 *							2				142
10ACP		A10CP		1-02 *							1				142
10ACP		A02C1		1-03 *											142
10ACP				1									10-4/8		142
10BCP		B10C2		1-01 *							1				143
10BCP		B10T1		1-02 *											143
10BCP				1									4-0/8		143
10CARRIER/CON		A16M2		1-01 *							1				144
10CARRIER/CON		B16P2		1-02 *											144
10CARRIER/CON				1									5-6/8		144
10CARRIER/LOGIC		A03J2		1-01 *							1				145
10CARRIER/LOGIC		A16B1		1-02 *											145
10CARRIER/LOGIC				1									9-0/8		145
10CLEAR TO SEND/CON		A16M2		1-01 *							1				146
10CLEAR TO SEND/CON		B16K2		1-02 *											146
10CLEAR TO SEND/CON				1									4-6/8		146
10CLEAR TO SEND/LOGIC		A03H2		1-01 *							1				147
10CLEAR TO SEND/LOGIC		A16F2		1-02 *											147
10CLEAR TO SEND/LOGIC				1									4-0/8		147
10DTR/CON		A16K2		1-01 *							1				148
10DTR/CON		B16K2		1-02 *											148
10DTR/CON				1									5-0/8		148
10DTR/LOGIC		A03E2		1-01 *							1				149
10DTR/LOGIC		A16P2		1-02 *											149
10DTR/LOGIC				1									9-2/8		149
10REQ TO SEND/CON		A16T2		1-01 *							2				150
10REQ TO SEND/CON		B16L2		1-02 *											150
10REQ TO SEND/CON				1									4-2/8		150
10REQ TO SEND/LOGIC		A03F2		1-01 *							1				151
10REQ TO SEND/LOGIC		A16S2		1-02 *											151
10REQ TO SEND/LOGIC				1									9-2/8		151

DM11DP.E RUN NAME	HND288.V23(23) A/P PIN NAME	05/24/74 ORDER PIN	BAY - ORDER	Q	DRAW	KV	PG	Y	X	Z	REMARKS	24-SEP-74 LENGTH	0152 EXCEPTIONS	PAGE 14 RUN NUMBER
10RING/CON	A16K2		1-01 *							1				152
10RING/CON	B16M2		1-02 *											152
10RING/CON			1									5-2/8		152
10RING/LOGIC	A03D2		1-01 *							1				153
10RING/LOGIC	A16C1		1-02 *											153
10RING/LOGIC			1									8-4/8		153
10SEC RX/LOGIC	A03L2		1-01 *							1				154
10SEC RX/LOGIC	A16E1		1-02 *											154
10SEC RX/LOGIC			1									8-6/8		154
10SEC TX/LOGIC	A03K2		1-01 *							1				155
10SEC TX/LOGIC	A16U2		1-02 *											155
10SEC TX/LOGIC			1									9-2/8		155
10SUP REC/CON	A16L2		1-01 *							1				156
10SUP REC/CON	B16F1		1-02 *											156
10SUP REC/CON			1									4-6/8		156
10SUP TRAN/CON	A16U1		1-01 *							1				157
10SUP TRAN/CON	B16E1		1-02 *											157
10SUP TRAN/CON			1									3-4/8		157
11AC2	A11C2		1-01 *							2				158
11AC2	A11T1		1-02 *							1				158
11AC2	A02T1		1-03 *											158
11AC2			1									10-6/8		158
11BC2	B11C2		1-01 *							1				159
11BC2	B11T1		1-02 *											159
11BC2			1									4-0/8		159
11CARRIER/CON	A17H2		1-01 *							1				160
11CARRIER/CON	B17P2		1-02 *											160
11CARRIER/CON			1									5-6/8		160
11CARRIER/LOGIC	A03S2		1-01 *							1				161
11CARRIER/LOGIC	A17B1		1-02 *											161
11CARRIER/LOGIC			1									10-0/8		161
11CLEAR TO SEND/CON	A17M2		1-01 *							1				162
11CLEAR TO SEND/CON	B17K2		1-02 *											162
11CLEAR TO SEND/CON			1									4-6/8		162

Q

DM11DP.E
RUN NAME

HND288.V23(23) 05/24/74
A/P PIN ORDER BAY -
NAME PIN ORDER

Q DRAW RV PG Y X Z REMARKS

24-SEP-74
LENGTH

0152
EXCEPTIONS

PAGE 15
RUN
NUMBER

11CLEAR TO SEND/LOGIC
11CLEAR TO SEND/LOGIC
11CLEAR TO SEND/LOGIC

A03K2
A17F2

1-01 *
1-02 *
1

1

9-6/8

163

163

163

11DTR/CON
11DTR/CON
11DTR/CON

A17K2
B17K2

1-01 *
1-02 *
1

1

5-0/8

164

164

164

11DTR/LOGIC
11DTR/LOGIC
11DTR/LOGIC

A03M2
A17P2

1-01 *
1-02 *
1

1

9-2/8

165

165

165

11REQ TO SEND/CON
11REQ TO SEND/CON
11REQ TO SEND/CON

A17T2
B17L2

1-01 *
1-02 *
1

2

4-2/8

166

166

166

11REQ TO SEND/LOGIC
11REQ TO SEND/LOGIC
11REQ TO SEND/LOGIC

A03M2
A17S2

1-01 *
1-02 *
1

1

9-4/8

167

167

167

11RING/CON
11RING/CON
11RING/CON

A17K2
B17M2

1-01 *
1-02 *
1

1

5-2/8

168

168

168

11RING/LOGIC
11RING/LOGIC
11RING/LOGIC

A03M2
A17C1

1-01 *
1-02 *
1

1

9-4/8

169

169

169

11SEC RX/LOGIC
11SEC RX/LOGIC
11SEC RX/LOGIC

A03V2
A17E1

1-01 *
1-02 *
1

1

9-6/8

170

170

170

11SEC TX/LOGIC
11SEC TX/LOGIC
11SEC TX/LOGIC

A03U2
A17U2

1-01 *
1-02 *
1

1

9-2/8

171

171

171

11SUP REC/CON
11SUP REC/CON
11SUP REC/CON

A17L2
B17F1

1-01 *
1-02 *
1

1

4-6/8

172

172

172

11SUP TRAN/CON
11SUP TRAN/CON
11SUP TRAN/CON

A17U1
B17E1

1-01 *
1-02 *
1

1

3-4/8

173

173

173

Q
DIGITAL
EQUIPMENT
CORPORATION

Q

DM11DP.E
RUN NAME

HND288.V23(23) 05/24/74
A/P PIN ORDER BAY -
NAME PIN ORDER

Q DRAW RV PG Y X Z REMARKS

24-SEP-74
LENGTH

0152
EXCEPTIONS

PAGE 16
RUN
NUMBER

12AC2
12AC2
12AC2
12AC2

A12T1
A12C2
A02C2

1-01 *
1-02 *
1-03 *
1

2

11-2/8

174

174

174

12BC2
12BC2
12BC2

B12C2
B12T1

1-01 *
1-02 *
1

1

4-0/8

175

175

175

12CARRIER/CON
12CARRIER/CON
12CARRIER/CON

A16H2
B16P2

1-01 *
1-02 *
1

1

5-6/8

176

176

176

12CARRIER/LOGIC
12CARRIER/LOGIC
12CARRIER/LOGIC

A16B1
B02J1

1-01 *
1-02 *
1

1

11-6/8

177

177

177

12CLEAR TO SEND/CON
12CLEAR TO SEND/CON
12CLEAR TO SEND/CON

A16M2
B16K2

1-01 *
1-02 *
1

1

4-6/8

178

178

178

12CLEAR TO SEND/LOGIC
12CLEAR TO SEND/LOGIC
12CLEAR TO SEND/LOGIC

A16F2
B02H1

1-01 *
1-02 *
1

1

12-0/8

179

179

179

12DTR/CON
12DTR/CON
12DTR/CON

A16R2
B16K2

1-01 *
1-02 *
1

1

5-0/8

180

180

180

12DTR/LOGIC
12DTR/LOGIC
12DTR/LOGIC

A16P2
B02E1

1-01 *
1-02 *
1

1

11-2/8

181

181

181

12REQ TO SEND/CON
12REQ TO SEND/CON
12REQ TO SEND/CON

A16T2
B16L2

1-01 *
1-02 *
1

2

4-2/8

182

182

182

12REQ TO SEND/LOGIC
12REQ TO SEND/LOGIC
12REQ TO SEND/LOGIC

A16S2
B02F1

1-01 *
1-02 *
1

1

11-2/8

183

183

183

12RING/CON
12RING/CON
12RING/CON

A16K2
B16M2

1-01 *
1-02 *
1

1

5-2/8

184

184

184

Q
DIGITAL
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UNITED STATES CORPORATION

DM11DP.E RUN NAME	A/P	HND288.V23(23) PIN NAME	05/24/74 ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	24-SEP-74 LENGTH	0152 EXCEPTIONS	PAGE 17 RUN NUMBER
12RING/LOGIC		A18C1		1-01 *							1				185
12RING/LOGIC		B02D1		1-02 *											185
12RING/LOGIC				1									11-4/8		185
12SEC RX/LOGIC		A18E1		1-01 *							1				186
12SEC RX/LOGIC		B02L1		1-02 *											186
12SEC RX/LOGIC				1									11-6/8		186
12SEC TX/LOGIC		A18U2		1-01 *							1				187
12SEC TX/LOGIC		B02K1		1-02 *											187
12SEC TX/LOGIC				1									11-2/8		187
12SUP REC/CON		A18L2		1-01 *							1				188
12SUP REC/CON		B18F1		1-02 *											188
12SUP REC/CON				1									4-6/8		188
12SUP TRAN/CON		A18U1		1-01 *							1				189
12SUP TRAN/CON		B18E1		1-02 *											189
12SUP TRAN/CON				1									3-4/8		189
13ACP		A13C2		1-01 *							2				190
13ACP		A13T1		1-02 *							1				190
13ACP		A02T2		1-03 *											190
13ACP				1									11-4/8		190
13BCP		B13C2		1-01 *							1				191
13BCP		B13T1		1-02 *											191
13BCP				1									4-0/8		191
13CARRIER/CON		A19H2		1-01 *							1				192
13CARRIER/CON		B19P2		1-02 *											192
13CARRIER/CON				1									5-6/8		192
13CARRIER/LOGIC		A19H1		1-01 *							1				193
13CARRIER/LOGIC		B02S1		1-02 *											193
13CARRIER/LOGIC				1									12-6/8		193
13CLEAR TO SEND/CON		A19M2		1-01 *							1				194
13CLEAR TO SEND/CON		B19K2		1-02 *											194
13CLEAR TO SEND/CON				1									4-6/8		194
13CLEAR TO SEND/LOGIC		A19F2		1-01 *							1				195
13CLEAR TO SEND/LOGIC		B02R1		1-02 *											195
13CLEAR TO SEND/LOGIC				1									12-6/8		195

UNITED STATES CORPORATION

DM11DP.E RUN NAME	A/P	HND288.V23(23) PIN NAME	05/24/74 ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	24-SEP-74 LENGTH	0152 EXCEPTIONS	PAGE 18 RUN NUMBER
13DTR/CON		A19R2		1-01 *							1				196
13DTR/CON		B19R2		1-02 *											196
13DTR/CON				1									5-0/8		196
13DTR/LOGIC		A19P2		1-01 *							1				197
13DTR/LOGIC		B02N1		1-02 *											197
13DTR/LOGIC				1									12-0/8		197
13REQ TO SEND/CON		A19T2		1-01 *							2				198
13REQ TO SEND/CON		B19L2		1-02 *											198
13REQ TO SEND/CON				1									4-2/8		198
13REQ TO SEND/LOGIC		A19S2		1-01 *							1				199
13REQ TO SEND/LOGIC		B02P1		1-02 *											199
13REQ TO SEND/LOGIC				1									12-2/8		199
13RING/CON		A19K2		1-01 *							1				200
13RING/CON		B19M2		1-02 *											200
13RING/CON				1									5-2/8		200
13RING/LOGIC		A19C1		1-01 *							1				201
13RING/LOGIC		B02M1		1-02 *											201
13RING/LOGIC				1									12-4/8		201
13SEC RX/LOGIC		A19E1		1-01 *							1				202
13SEC RX/LOGIC		B02V1		1-02 *											202
13SEC RX/LOGIC				1									12-4/8		202
13SEC TX/LOGIC		A19U2		1-01 *							1				203
13SEC TX/LOGIC		B02U1		1-02 *											203
13SEC TX/LOGIC				1									12-2/8		203
13SUP REC/CON		A19L2		1-01 *							1				204
13SUP REC/CON		B19F1		1-02 *											204
13SUP REC/CON				1									4-6/8		204
13SUP TRAN/CON		A19U1		1-01 *							1				205
13SUP TRAN/CON		B19E1		1-02 *											205
13SUP TRAN/CON				1									3-4/8		205
14ACP		A19T1		1-01 *							2				206
14ACP		A19C2		1-02 *							1				206
14ACP		A03C1		1-03 *											206
14ACP				1									12-0/8		206

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DI 11DP.E	HND2A8.V23(23)		05/24/74												24-SEP-74	0152	PAGE 21
RUN NAME	A/P	PIN	ORDER	BAY -	W	DRAW	KV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN		
		NAME	PIN	ORDER											NUMBER		
15REL TO SEND/CON		A21T2		1-01 *							2				230		
15REL TO SEND/CON		B21L2		1-02 *											230		
15REL TO SEND/CON				1									4-2/8		230		
15REL TO SEND/LOGIC		A21S2		1-01 *							1				231		
15REL TO SEND/LOGIC		B02P2		1-02 *											231		
15REL TO SEND/LOGIC				1									13-0/8		231		
15RING/CON		A21K2		1-01 *							1				232		
15RING/CON		B21M2		1-02 *											232		
15RING/CON				1									5-2/8		232		
15RING/LOGIC		A21C1		1-01 *							1				233		
15RING/LOGIC		B02M2		1-02 *											233		
15RING/LOGIC				1									13-2/8		233		
15SUP REC/CON		A21L2		1-01 *							1				234		
15SUP REC/CON		B21F1		1-02 *											234		
15SUP REC/CON				1									4-6/8		234		
15SUP REC/LOGIC		A21E1		1-01 *							1				235		
15SUP REC/LOGIC		B02V2		1-02 *											235		
15SUP REC/LOGIC				1									13-2/8		235		
15SUP TRAN/CON		A21U1		1-01 *							1				236		
15SUP TRAN/CON		B21E1		1-02 *											236		
15SUP TRAN/CON				1									3-4/8		236		
15SUP TRAN/LOGIC		A21U2		1-01 *							1				237		
15SUP TRAN/LOGIC		B02U2		1-02 *											237		
15SUP TRAN/LOGIC				1									13-0/8		237		
16AC2		A16T1		1-01 *							2				238		
16AC2		A16C2		1-02 *							1				238		
16AC2		A03C2		1-03 *											238		
16AC2				1									12-6/8		238		
16BC2		B16C2		1-01 *							1				239		
16BC2		B16T1		1-02 *											239		
16BC2				1									4-0/8		239		
17AC2		A17C2		1-01 *							2				240		
17AC2		A17T1		1-02 *							1				240		
17AC2		A03T2		1-03 *											240		
17AC2				1									13-0/8		240		

DM11DP.E RUN NAME	HND288.V23(23) A/P PIN NAME	05/24/74 ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	24-SEP-74 LENGTH	0152 EXCEPTIONS	PAGE 22 RUN NUMBER
178C2	B17C2		1-01 *							1				241
178C2	B17T1		1-02 *											241
178C2			1									4-0/8		241
18AC2	A18C2		1-01 *							2				242
18AC2	A18T1		1-02 *							1				242
18AC2	B02C1		1-03 *											242
18AC2			1									15-0/8		242
188C2	B18C2		1-01 *							1				243
188C2	B18T1		1-02 *											243
188C2			1									4-0/8		243
19AC2	A19C2		1-01 *							2				244
19AC2	A19T1		1-02 *							1				244
19AC2	B02T1		1-03 *											244
19AC2			1									16-0/8		244
198C2	B19C2		1-01 *							1				245
198C2	B19T1		1-02 *											245
198C2			1									4-0/8		245
20AC2	A20C2		1-01 *							2				246
20AC2	A20T1		1-02 *							1				246
20AC2	B02C2		1-03 *											246
20AC2			1									15-6/8		246
208C2	B20C2		1-01 *							1				247
208C2	B20T1		1-02 *											247
208C2			1									4-0/8		247
21AC2	A21C2		1-01 *							2				248
21AC2	A21T1		1-02 *							1				248
21AC2	B02T2		1-03 *											248
21AC2			1									16-6/8		248
218C2	B21C2		1-01 *							1				249
218C2	B21T1		1-02 *											249
218C2			1									4-0/8		249
4AC2	A04C2		1-01 *							1				250
4AC2	A04T1		1-02 *											250
4AC2			1									4-0/8		250

CORPORATION

DM11DP.L	HND288.V23(23)		05/24/74												24-SEP-74	0152	PAGE 25
RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER		
LINEOUT/DIFCON		A06M1		1-01 *							2				271		
LINEOUT/DIFCON		B06D1		1-02 *							1				271		
LINEOUT/DIFCON		R22M1		1-03 *											271		
LINEOUT/DIFCON				1									14-6/8		271		
LINEOUT/DIFCON+		A06L1		1-01 *							2				272		
LINEOUT/DIFCON+		B06C1		1-02 *							1				272		
LINEOUT/DIFCON+		B22L1		1-03 *											272		
LINEOUT/DIFCON+				1									15-0/8		272		
LINEOUT/LOGIC		A04V2		1-01 *							2				273		
LINEOUT/LOGIC		B03D1		1-02 *							1				273		
LINEOUT/LOGIC		B01D1		1-03 *							2				273		
LINEOUT/LOGIC		R04V2		1-04 *							1				273		
LINEOUT/LOGIC		R22V2		1-05 *											273		
LINEOUT/LOGIC				1									23-6/8		273		
LINEO1R/CON		A07J2		1-01 *							2				274		
LINEO1R/CON		B07F2		1-02 *							1				274		
LINEO1R/CON		B04J1		1-03 *											274		
LINEO1R/CON				1									9-0/8		274		
LINEO1R/DIFCON		A07P1		1-01 *							2				275		
LINEO1R/DIFCON		B07N1		1-02 *							1				275		
LINEO1R/DIFCON		B22E2		1-03 *											275		
LINEO1R/DIFCON				1									15-2/8		275		
LINEO1R/DIFCON+		A07N1		1-01 *							2				276		
LINEO1R/DIFCON+		B07J1		1-02 *							1				276		
LINEO1R/DIFCON+		B22J1		1-03 *											276		
LINEO1R/DIFCON+				1									14-2/8		276		
LINEO1R/LOGIC		A07D1		1-01 *							2				277		
LINEO1R/LOGIC		B01E1		1-02 *							1				277		
LINEO1R/LOGIC		B03E1		1-03 *							2				277		
LINEO1R/LOGIC		B04K1		1-04 *							1				277		
LINEO1R/LOGIC		B22K1		1-05 *											277		
LINEO1R/LOGIC				1									24-2/8		277		
LINEO1T/CON		A07V1		1-01 *							2				278		
LINEO1T/CON		B07E2		1-02 *							1				278		
LINEO1T/CON		B04S1		1-03 *											278		
LINEO1T/CON				1									8-2/8		278		

DM11DP.1	HND288.V23(23)		05/24/74												24-SEP-74	0152	PAGE 26
RUN NAME	A/P	PIN NAME	ORDER PIN	HAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER		
LINE01T/DIFCON		A07M1		1-01 *							2				279		
LINE01T/DIFCON		B07D1		1-02 *							1				279		
LINE01T/DIFCON		B22L2		1-03 *											279		
LINE01T/DIFCON				1									14-b/8		279		
LINE01T/DIFCON+		A07L1		1-01 *							2				280		
LINE01T/DIFCON+		B07C1		1-02 *							1				280		
LINE01T/DIFCON+		B22S1		1-03 *											280		
LINE01T/DIFCON+				1									14-b/8		280		
LINE01T/LOGIC		A07V2		1-01 *							2				281		
LINE01T/LOGIC		B03F1		1-02 *							1				281		
LINE01T/LOGIC		B01F1		1-03 *							2				281		
LINE01T/LOGIC		B04K1		1-04 *							1				281		
LINE01T/LOGIC		B22R1		1-05 *											281		
LINE01T/LOGIC				1									24-0/8		281		
LINE02R/CON		A08J2		1-01 *							2				282		
LINE02R/CON		B08F2		1-02 *							1				282		
LINE02R/CON		B04F1		1-03 *											282		
LINE02R/CON				1									9-2/8		282		
LINE02R/DIFCON		A08P1		1-01 *							2				283		
LINE02R/DIFCON		B08N1		1-02 *							1				283		
LINE02R/DIFCON		B22H2		1-03 *											283		
LINE02R/DIFCON				1									14-b/8		283		
LINE02R/DIFCON+		A08N1		1-01 *							2				284		
LINE02R/DIFCON+		B08J1		1-02 *							1				284		
LINE02R/DIFCON+		B22F1		1-03 *											284		
LINE02R/DIFCON+				1									14-0/8		284		
LINE02R/LOGIC		B01H1		1-01 *							2				285		
LINE02R/LOGIC		B03H1		1-02 *							1				285		
LINE02R/LOGIC		B04H1		1-03 *							2				285		
LINE02R/LOGIC		A08D1		1-04 *							1				285		
LINE02R/LOGIC		B22H1		1-05 *											285		
LINE02R/LOGIC				1									23-0/8		285		
LINE02T/CON		A08V1		1-01 *							2				286		
LINE02T/CON		B08E2		1-02 *							1				286		
LINE02T/CON		B04U1		1-03 *											286		
LINE02T/CON				1									8-b/8		286		

0M11DPLE	HND28A.V23(23)	05/24/74											24-SEP-74	0152	PAGE 02
RUN NAME	A/P	PIN	ORDER	BAY -	Q	DRAW	KV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
		NAME	PIN	ORDER											
LINE04T/DIFCON		A10M1		1-01 *							2				303
LINE04T/DIFCON		B10D1		1-02 *							1				303
LINE04T/DIFCON		B23M1		1-03 *											303
LINE04T/DIFCON				1									13-2/8		303
LINE04T/DIFCON+		A10L1		1-01 *							2				304
LINE04T/DIFCON+		B10C1		1-02 *							1				304
LINE04T/DIFCON+		B23L1		1-03 *											304
LINE04T/DIFCON+				1									13-4/8		304
LINE04T/LOGIC		B01N1		1-01 *							2				305
LINE04T/LOGIC		B03N1		1-02 *							1				305
LINE04T/LOGIC		B05V2		1-03 *							2				305
LINE04T/LOGIC		A10V2		1-04 *							1				305
LINE04T/LOGIC		B23V2		1-05 *											305
LINE04T/LOGIC				1									23-4/8		305
LINE05R/CON		A11J2		1-01 *							2				306
LINE05R/CON		B11F2		1-02 *							1				306
LINE05R/CON		B05J1		1-03 *											306
LINE05R/CON				1									10-4/8		306
LINE05R/DIFCON		A11P1		1-01 *							2				307
LINE05R/DIFCON		B11N1		1-02 *							1				307
LINE05R/DIFCON		B23E2		1-03 *											307
LINE05R/DIFCON				1									13-4/8		307
LINE05R/DIFCON+		A11N1		1-01 *							2				308
LINE05R/DIFCON+		B11J1		1-02 *							1				308
LINE05R/DIFCON+		B23J1		1-03 *											308
LINE05R/DIFCON+				1									12-4/8		308
LINE05R/LOGIC		B01P1		1-01 *							2				309
LINE05R/LOGIC		B03P1		1-02 *							1				309
LINE05R/LOGIC		B05K1		1-03 *							2				309
LINE05R/LOGIC		A11D1		1-04 *							1				309
LINE05R/LOGIC		B23K1		1-05 *											309
LINE05R/LOGIC				1									23-4/8		309
LINE05T/CON		A11V1		1-01 *							2				310
LINE05T/CON		B11E2		1-02 *							1				310

DM11DP.L RUN NAME	HND288.V23(23) A/P PIN NAME	05/24/74 ORDER PIN ORDER	BAY - Q	DRAW	RV	PG	Y	X	Z	REMARKS	24-SEP-74 LENGTH	0152 EXCEPTIONS	PAGE 2 RUN NUMBER
LINEOST/DIFCON	A11M1	1-01 *							2				311
LINEOST/DIFCON	B11D1	1-02 *							1				311
LINEOST/DIFCON	B23L2	1-03 *											311
LINEOST/DIFCON		1									13-2/8		311
LINEOST/DIFCON+	A11L1	1-01 *							2				312
LINEOST/DIFCON+	B11C1	1-02 *							1				312
LINEOST/DIFCON+	B23S1	1-03 *											312
LINEOST/DIFCON+		1									13-2/8		312
LINEOST/LOGIC	B01R1	1-01 *							2				313
LINEOST/LOGIC	B03R1	1-02 *							1				313
LINEOST/LOGIC	B05R1	1-03 *							2				313
LINEOST/LOGIC	A11V2	1-04 *							1				313
LINEOST/LOGIC	B23R1	1-05 *											313
LINEOST/LOGIC		1									22-0/8		313
LINEOBR/CON	A12J2	1-01 *							2				314
LINEOBR/CON	B12F2	1-02 *							1				314
LINEOBR/CON	B05F1	1-03 *											314
LINEOBR/CON		1									10-6/8		314
LINEOBR/DC	A12P1	1-01 *							2				315
LINEOBR/DC	B12N1	1-02 *							1				315
LINEOBR/DC	B23H2	1-03 *											315
LINEOBR/DC		1									13-2/8		315
LINEOBR/DIFCON+	A12N1	1-01 *							2				316
LINEOBR/DIFCON+	B12J1	1-02 *							1				316
LINEOBR/DIFCON+	B23F1	1-03 *											316
LINEOBR/DIFCON+		1									12-4/8		316
LINEOBR/LOGIC	B01S1	1-01 *							2				317
LINEOBR/LOGIC	B03S1	1-02 *							1				317
LINEOBR/LOGIC	B05H1	1-03 *							2				317
LINEOBR/LOGIC	A12D1	1-04 *							1				317
LINEOBR/LOGIC	B23H1	1-05 *											317
LINEOBR/LOGIC		1									23-2/8		317
LINEOBT/CON	A12V1	1-01 *							2				318
LINEOBT/CON	B12E2	1-02 *							1				318
LINEOBT/CON	B05U1	1-03 *											318
LINEOBT/CON		1									10-2/8		318

DM11DP.E RUN NAME	HND288.V23(23) 05/24/74				Q	DRAW	RV	PG	Y	X	Z	REMARKS	24-SEP-74 LENGTH	U152 EXCEPTIONS	PAGE 31 RUN NUMBER
A/P	PIN NAME	ORDER PIN	BAY - ORDER												
LINE06T/DIFCON	A12M1		1-01 *								2				319
LINE06T/DIFCON	B12D1		1-02 *								1				319
LINE06T/DIFCON	B23M2		1-03 *												319
LINE06T/DIFCON			1										12-4/8		319
LINE06T/DIFCON+	A12L1		1-01 *								2				320
LINE06T/DIFCON+	B12C1		1-02 *								1				320
LINE06T/DIFCON+	B23V1		1-03 *												320
LINE06T/DIFCON+			1										13-0/8		320
LINE06T/LOGIC	B01T1		1-01 *								2				321
LINE06T/LOGIC	B03T1		1-02 *								1				321
LINE06T/LOGIC	B05U2		1-03 *								2				321
LINE06T/LOGIC	A12V2		1-04 *								1				321
LINE06T/LOGIC	B23U2		1-05 *												321
LINE06T/LOGIC			1										22-4/8		321
LINE07R/CON	A13J2		1-01 *								2				322
LINE07R/CON	B13F2		1-02 *								1				322
LINE07R/CON	B05H2		1-03 *												322
LINE07R/CON			1										11-2/8		322
LINE07R/DIFCON	A13P1		1-01 *								2				323
LINE07R/DIFCON	B13N1		1-02 *								1				323
LINE07R/DIFCON	B23J2		1-03 *												323
LINE07R/DIFCON			1										12-4/8		323
LINE07R/DIFCON+	A13N1		1-01 *								2				324
LINE07R/DIFCON+	B13J1		1-02 *								1				324
LINE07R/DIFCON+	B23K2		1-03 *												324
LINE07R/DIFCON+			1										12-0/8		324
LINE07R/LOGIC	B03U1		1-01 *								2				325
LINE07R/LOGIC	B01U1		1-02 *								1				325
LINE07R/LOGIC	B05B1		1-03 *								2				325
LINE07R/LOGIC	A13D1		1-04 *								1				325
LINE07R/LOGIC	B23B1		1-05 *												325
LINE07R/LOGIC			1										24-4/8		325
LINE07T/CON	A13V1		1-01 *								2				326
LINE07T/CON	B13E2		1-02 *								1				326
LINE07T/CON	B05T2		1-03 *												326
LINE07T/CON			1										10-2/8		326

DM11DP.E RUN NAME	HND288.V23(23) 05/24/74				Q	DRAW	RV	PG	Y	X	Z	REMARKS	24-SEP-74 LENGTH	U152 EXCEPTIONS	PAGE 32 RUN NUMBER
A/P	PIN NAME	ORDER PIN	BAY - ORDER												
LINE07T/DIFCON	A13M1		1-01 *								2				327
LINE07T/DIFCON	B13D1		1-02 *								1				327
LINE07T/DIFCON	B23R2		1-03 *												327
LINE07T/DIFCON			1										12-4/8		327
LINE07T/DIFCON+	A13L1		1-01 *								2				328
LINE07T/DIFCON+	B13C1		1-02 *								1				328
LINE07T/DIFCON+	B23T2		1-03 *												328
LINE07T/DIFCON+			1										12-6/8		328
LINE07T/LOGIC	B01V1		1-01 *								2				329
LINE07T/LOGIC	B03V1		1-02 *								1				329
LINE07T/LOGIC	B05S2		1-03 *								2				329
LINE07T/LOGIC	A13V2		1-04 *								1				329
LINE07T/LOGIC	B23S2		1-05 *												329
LINE07T/LOGIC			1										22-6/8		329
LINE08R/CON	A04J2		1-01 *								1				330
LINE08R/CON	A14J2		1-02 *								2				330
LINE08R/CON	B14F2		1-03 *												330
LINE08R/CON			1										12-0/8		330
LINE08R/DIFCON	A22P1		1-01 *								1				331
LINE08R/DIFCON	A14P1		1-02 *								2				331
LINE08R/DIFCON	B14N1		1-03 *												331
LINE08R/DIFCON			1										11-2/8		331
LINE08R/DIFCON+	A22N1		1-01 *								1				332
LINE08R/DIFCON+	A14N1		1-02 *								2				332
LINE08R/DIFCON+	B14J1		1-03 *												332
LINE08R/DIFCON+			1										10-6/8		332
LINE08R/LOGIC	A22D1		1-01 *								1				333
LINE08R/LOGIC	A14D1		1-02 *								2				333
LINE08R/LOGIC	A04D1		1-03 *								1				333
LINE08R/LOGIC	B03C2		1-04 *								2				333
LINE08R/LOGIC	B01C2		1-05 *												333
LINE08R/LOGIC			1										22-0/8		333
LINE08T/CON	A04V1		1-01 *								1				334
LINE08T/CON	A14V1		1-02 *								2				334
LINE08T/CON	B14L2		1-03 *												334
LINE08T/CON			1										10-6/8		334

INFORMATION CORPORATION

DM11DP.E RUN NAME	A/P	HND288.V23(23) PIN NAME	05/24/74 ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	24-SEP-74 LENGTH	0152 EXCEPTIONS	PAGE 33 RUN NUMBER
LINE08T/DIFCON		A22M1		1-01 *							1				335
LINE08T/DIFCON		A14M1		1-02 *							2				335
LINE08T/DIFCON		B14D1		1-03 *											335
LINE08T/DIFCON				1									10-4/8		335
LINE08T/DIFCON+		A22L1		1-01 *							1				336
LINE08T/DIFCON+		A14L1		1-02 *							2				336
LINE08T/DIFCON+		B14C1		1-03 *											336
LINE08T/DIFCON+				1									10-4/8		336
LINE08T/LOGIC		A22V2		1-01 *							2				337
LINE08T/LOGIC		A14V2		1-02 *							1				337
LINE08T/LOGIC		A04V2		1-03 *							2				337
LINE08T/LOGIC		B03D2		1-04 *							1				337
LINE08T/LOGIC		B01D2		1-05 *											337
LINE08T/LOGIC				1									20-2/8		337
LINE09R/CON		A04J1		1-01 *							1				338
LINE09R/CON		A15J2		1-02 *							2				338
LINE09R/CON		B15F2		1-03 *											338
LINE09R/CON				1									12-6/8		338
LINE09R/DIFCON		A22E2		1-01 *							1				339
LINE09R/DIFCON		A15P1		1-02 *							2				339
LINE09R/DIFCON		B15N1		1-03 *											339
LINE09R/DIFCON				1									11-4/8		339
LINE09R/DIFCON+		A22J1		1-01 *							1				340
LINE09R/DIFCON+		A15N1		1-02 *							2				340
LINE09R/DIFCON+		B15J1		1-03 *											340
LINE09R/DIFCON+				1									10-4/8		340
LINE09R/LOGIC		A22K1		1-01 *							2				341
LINE09R/LOGIC		A15D1		1-02 *							1				341
LINE09R/LOGIC		A04K1		1-03 *							2				341
LINE09R/LOGIC		B03E2		1-04 *							1				341
LINE09R/LOGIC		B01E2		1-05 *											341
LINE09R/LOGIC				1									22-2/8		341
LINE09T/CON		A04S1		1-01 *							1				342
LINE09T/CON		A15V1		1-02 *							2				342
LINE09T/CON		B15E2		1-03 *											342
LINE09T/CON				1									11-6/8		342

INFORMATION CORPORATION

DM11DP.E RUN NAME	A/P	HND288.V23(23) PIN NAME	05/24/74 ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	24-SEP-74 LENGTH	0152 EXCEPTIONS	PAGE 34 RUN NUMBER
LINE09T/DIFCON		A22L2		1-01 *							1				343
LINE09T/DIFCON		A15M1		1-02 *							2				343
LINE09T/DIFCON		B15D1		1-03 *											343
LINE09T/DIFCON				1									10-4/8		343
LINE09T/DIFCON+		A22S1		1-01 *							1				344
LINE09T/DIFCON+		A15L1		1-02 *							2				344
LINE09T/DIFCON+		B15C1		1-03 *											344
LINE09T/DIFCON+				1									10-2/8		344
LINE09T/LOGIC		A22K1		1-01 *							2				345
LINE09T/LOGIC		A15V2		1-02 *							1				345
LINE09T/LOGIC		A04K1		1-03 *							2				345
LINE09T/LOGIC		B03F2		1-04 *							1				345
LINE09T/LOGIC		B01F2		1-05 *											345
LINE09T/LOGIC				1									21-4/8		345
LINE10R/CON		A04F1		1-01 *							1				346
LINE10R/CON		A16J2		1-02 *							2				346
LINE10R/CON		B16F2		1-03 *											346
LINE10R/CON				1									13-4/8		346
LINE10R/DIFCON		A22H2		1-01 *							1				347
LINE10R/DIFCON		A16P1		1-02 *							2				347
LINE10R/DIFCON		B16N1		1-03 *											347
LINE10R/DIFCON				1									11-0/8		347
LINE10R/DIFCON+		A22F1		1-01 *							1				348
LINE10R/DIFCON+		A16N1		1-02 *							2				348
LINE10R/DIFCON+		B16J1		1-03 *											348
LINE10R/DIFCON+				1									10-2/8		348
LINE10R/LOGIC		A22H1		1-01 *							2				349
LINE10R/LOGIC		A16D1		1-02 *							1				349
LINE10R/LOGIC		A04H1		1-03 *							2				349
LINE10R/LOGIC		B03H2		1-04 *							1				349
LINE10R/LOGIC		B01H2		1-05 *											349
LINE10R/LOGIC				1									22-6/8		349
LINE10T/CON		A04U1		1-01 *							1				350
LINE10T/CON		A16V1		1-02 *							2				350
LINE10T/CON		B16E2		1-03 *											350
LINE10T/CON				1									12-0/8		350

UNITED EQUIPMENT CORPORATION

DM11DP.E	HND288.VP3(P3) 05/24/74	PAGE 35
RUN NAME	A/P PIN ORDER BAY - Q DRAW RV PG Y X Z REMARKS	LENGTH EXCEPTIONS RUN NUMBER
LINE10T/DIFCON	A22M2 1-01 *	351
LINE10T/DIFCON	A16M1 1-02 *	351
LINE10T/DIFCON	B16D1 1-03 *	351
LINE10T/DIFCON	1	9-6/8 351
LINE10T/DIFCON+	A16L1 1-01 *	352
LINE10T/DIFCON+	B16C1 1-02 *	352
LINE10T/DIFCON+	A22V1 1-03 *	352
LINE10T/DIFCON+	1	10-0/8 352
LINE10T/LOGIC	A22U2 1-01 *	353
LINE10T/LOGIC	A16V2 1-02 *	353
LINE10T/LOGIC	A04U2 1-03 *	353
LINE10T/LOGIC	B03J2 1-04 *	353
LINE10T/LOGIC	B01J2 1-05 *	353
LINE10T/LOGIC	1	21-2/8 353
LINE11R/CON	A04H2 1-01 *	354
LINE11R/CON	A17J2 1-02 *	354
LINE11R/CON	B17F2 1-03 *	354
LINE11R/CON	1	13-6/8 354
LINE11R/DIFCON	A22J2 1-01 *	355
LINE11R/DIFCON	A17P1 1-02 *	355
LINE11R/DIFCON	B17N1 1-03 *	355
LINE11R/DIFCON	1	10-4/8 355
LINE11R/DIFCON+	A22K2 1-01 *	356
LINE11R/DIFCON+	A17N1 1-02 *	356
LINE11R/DIFCON+	B17J1 1-03 *	356
LINE11R/DIFCON+	1	9-6/8 356
LINE11R/LOGIC	A22B1 1-01 *	357
LINE11R/LOGIC	A17D1 1-02 *	357
LINE11R/LOGIC	A04B1 1-03 *	357
LINE11R/LOGIC	B03K2 1-04 *	357
LINE11R/LOGIC	B01K2 1-05 *	357
LINE11R/LOGIC	1	23-4/8 357
LINE11T/CON	A04T2 1-01 *	358
LINE11T/CON	A17V1 1-02 *	358
LINE11T/CON	B17E2 1-03 *	358
LINE11T/CON	1	12-2/8 358

DM11DP.L	HND288.V23(23) 05/24/74										24-SEP-74	0152	PAGE 36		
RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
LINE11T/DIFCON		A22R2		1-01 *							1				359
LINE11T/DIFCON		A17M1		1-02 *							2				359
LINE11T/DIFCON		B17D1		1-03 *											359
LINE11T/DIFCON				1									9-6/8		359
LINE11T/DIFCON+		A22T2		1-01 *							1				360
LINE11T/DIFCON+		A17L1		1-02 *							2				360
LINE11T/DIFCON+		B17C1		1-03 *											360
LINE11T/DIFCON+				1									9-6/8		360
LINE11T/LOGIC		A22S2		1-01 *							2				361
LINE11T/LOGIC		A17V2		1-02 *							1				361
LINE11T/LOGIC		A04S2		1-03 *							2				361
LINE11T/LOGIC		B03L2		1-04 *							1				361
LINE11T/LOGIC		B03L2		1-05 *											361
LINE11T/LOGIC				1									22-2/8		361
LINE12R/CON		A05J2		1-01 *							1				362
LINE12R/CON		A18J2		1-02 *							2				362
LINE12R/CON		B18F2		1-03 *											362
LINE12R/CON				1									13-4/8		362
LINE12R/DIFCON		A23P1		1-01 *							1				363
LINE12R/DIFCON		A18P1		1-02 *							2				363
LINE12R/DIFCON		B18N1		1-03 *											363
LINE12R/DIFCON				1									9-6/8		363
LINE12R/DIFCON+		A23N1		1-01 *							1				364
LINE12R/DIFCON+		A18N1		1-02 *							2				364
LINE12R/DIFCON+		B18J1		1-03 *											364
LINE12R/DIFCON+				1									9-2/8		364
LINE12R/LOGIC		A23D1		1-01 *							2				365
LINE12R/LOGIC		A18D1		1-02 *							1				365
LINE12R/LOGIC		A05D1		1-03 *							2				365
LINE12R/LOGIC		B03M2		1-04 *							1				365
LINE12R/LOGIC		B03M2		1-05 *											365
LINE12R/LOGIC				1									23-0/8		365
LINE12T/CON		A05V1		1-01 *							1				366
LINE12T/CON		A18V1		1-02 *							2				366
LINE12T/CON		B18E2		1-03 *											366
LINE12T/CON				1									12-2/8		366

LINE12T/DIFCON

DM11DP.L RUN NAME	HND288.V23(23) 05/24/74 A/P PIN ORDER BAY - NAME PIN ORDER	Q	DRAW	KV	PG	Y	X	Z	REMARKS	24-SEP-74 LENGTH	U152 EXCEPTIONS	PAGE 37 RUN NUMBER
LINE12T/DIFCON	A23M1							1				367
LINE12T/DIFCON	A18M1							2				367
LINE12T/DIFCON	B18D1											367
LINE12T/DIFCON										9-0/8		367
LINE12T/DIFCON+	A23L1							1				368
LINE12T/DIFCON+	A18L1							2				368
LINE12T/DIFCON+	B18C1											368
LINE12T/DIFCON+										9-0/8		368
LINE12T/LOGIC	A23V2							2				369
LINE12T/LOGIC	A18V2							1				369
LINE12T/LOGIC	A05V2							2				369
LINE12T/LOGIC	B03N2							1				369
LINE12T/LOGIC	B01N2											369
LINE12T/LOGIC										21-4/8		369
LINE13R/CON	A05J1							1				370
LINE13R/CON	A19J2							2				370
LINE13R/CON	B19F2											370
LINE13R/CON										14-2/8		370
LINE13R/DIFCON	A23E2							1				371
LINE13R/DIFCON	A19P1							2				371
LINE13R/DIFCON	B19N1											371
LINE13R/DIFCON										10-0/8		371
LINE13R/DIFCON+	A23J1							1				372
LINE13R/DIFCON+	A19N1							2				372
LINE13R/DIFCON+	B19J1											372
LINE13R/DIFCON+										9-0/8		372
LINE13R/LOGIC	A23K1							2				373
LINE13R/LOGIC	A19D1							1				373
LINE13R/LOGIC	A05K1							2				373
LINE13R/LOGIC	B03P2							1				373
LINE13R/LOGIC	B01P2											373
LINE13R/LOGIC										23-4/8		373
LINE13T/CON	A05S1							1				374
LINE13T/CON	A19V1							2				374
LINE13T/CON	B19E2											374
LINE13T/CON										13-2/8		374

DM11DP.L RUN NAME	HND288.V23(23) 05/24/74 A/P PIN ORDER BAY - NAME PIN ORDER	Q	DRAW	KV	PG	Y	X	Z	REMARKS	24-SEP-74 LENGTH	U152 EXCEPTIONS	PAGE 38 RUN NUMBER
LINE13T/DIFCON	A23L2							1				375
LINE13T/DIFCON	A19M1							2				375
LINE13T/DIFCON	B19D1											375
LINE13T/DIFCON										9-0/8		375
LINE13T/DIFCON+	A23S1							1				376
LINE13T/DIFCON+	A19L1							2				376
LINE13T/DIFCON+	B19C1											376
LINE13T/DIFCON+										8-6/8		376
LINE13T/LOGIC	A23R1							2				377
LINE13T/LOGIC	A19V2							1				377
LINE13T/LOGIC	A05R1							2				377
LINE13T/LOGIC	B03R2							1				377
LINE13T/LOGIC	B01R2											377
LINE13T/LOGIC										22-6/8		377
LINE14R/CON	A05F1							1				378
LINE14R/CON	A20J2							2				378
LINE14R/CON	B20F2											378
LINE14R/CON										15-0/8		378
LINE14R/DIFCON	A23H2							1				379
LINE14R/DIFCON	A20P1							2				379
LINE14R/DIFCON	B20N1											379
LINE14R/DIFCON										9-4/8		379
LINE14R/DIFCON+	A23F1							1				380
LINE14R/DIFCON+	A20N1							2				380
LINE14R/DIFCON+	B20J1											380
LINE14R/DIFCON+										8-6/8		380
LINE14R/LOGIC	A23H1							2				381
LINE14R/LOGIC	A20D1							1				381
LINE14R/LOGIC	A05H1							2				381
LINE14R/LOGIC	B03S2							1				381
LINE14R/LOGIC	B01S2											381
LINE14R/LOGIC										24-0/8		381
LINE14T/CON	A05U1							1				382
LINE14T/CON	A20V1							2				382
LINE14T/CON	B20L2											382
LINE14T/CON										13-4/8		382

DM11DP.E RUN NAME	HND288.V23(23) 05/24/74				Q	DRAW	RV	PG	Y	X	Z	REMARKS	24-SEP-74 LENGTH	0152 EXCEPTIONS	PAGE 3 RUN NUMBER
	A/P	PIN NAME	ORDER PIN	BAY - ORDER											
LINE14T/DIFCON		A23M2		1-01 *							1				383
LINE14T/DIFCON		A20M1		1-02 *							2				383
LINE14T/DIFCON		B20D1		1-03 *											383
LINE14T/DIFCON				1									8-2/8		383
LINE14T/DIFCON+		A20L1		1-01 *							2				384
LINE14T/DIFCON+		B20C1		1-02 *							1				384
LINE14T/DIFCON+		A23V1		1-03 *											384
LINE14T/DIFCON+				1									8-4/8		384
LINE14T/LOGIC		A23U2		1-01 *							2				385
LINE14T/LOGIC		A20V2		1-02 *							1				385
LINE14T/LOGIC		A05U2		1-03 *							2				385
LINE14T/LOGIC		B03T2		1-04 *							1				385
LINE14T/LOGIC		B01T2		1-05 *											385
LINE14T/LOGIC				1									22-2/8		385
LINE15R/CON		A05H2		1-01 *							1				386
LINE15R/CON		A21J2		1-02 *							2				386
LINE15R/CON		B21F2		1-03 *											386
LINE15R/CON				1									15-2/8		386
LINE15R/DIFCON		A23J2		1-01 *							2				387
LINE15R/DIFCON		A21P1		1-02 *							1				387
LINE15R/DIFCON		B21N1		1-03 *											387
LINE15R/DIFCON				1									9-0/8		387
LINE15R/DIFCON+		A23K2		1-01 *							2				388
LINE15R/DIFCON+		A21N1		1-02 *							1				388
LINE15R/DIFCON+		B21J1		1-03 *											388
LINE15R/DIFCON+				1									8-2/8		388
LINE15R/LOGIC		A23B1		1-01 *							2				389
LINE15R/LOGIC		A21D1		1-02 *							1				389
LINE15R/LOGIC		A05B1		1-03 *							2				389
LINE15R/LOGIC		B03U2		1-04 *							1				389
LINE15R/LOGIC		B01U2		1-05 *											389
LINE15R/LOGIC				1									24-4/8		389
LINE15T/CON		A05T2		1-01 *							1				390
LINE15T/CON		A21V1		1-02 *							2				390
LINE15T/CON		B21E2		1-03 *											390
LINE15T/CON				1									13-6/8		390

DM11DP.E RUN NAME	HND288.V23(23) 05/24/74				Q	DRAW	RV	PG	Y	X	Z	REMARKS	24-SEP-74 LENGTH	0152 EXCEPTIONS	PAGE 40 RUN NUMBER
	A/P	PIN NAME	ORDER PIN	BAY - ORDER											
LINE15T/DIFCON		A23R2		1-01 *							1				391
LINE15T/DIFCON		A21M1		1-02 *							2				391
LINE15T/DIFCON		B21D1		1-03 *											391
LINE15T/DIFCON				1									8-2/8		391
LINE15T/DIFCON+		A23T2		1-01 *							1				392
LINE15T/DIFCON+		A21L1		1-02 *							2				392
LINE15T/DIFCON+		B21C1		1-03 *											392
LINE15T/DIFCON+				1									8-2/8		392
LINE15T/LOGIC		A23S2		1-01 *							2				393
LINE15T/LOGIC		A21V2		1-02 *							1				393
LINE15T/LOGIC		A05S2		1-03 *							2				393
LINE15T/LOGIC		B03V2		1-04 *							1				393
LINE15T/LOGIC		B01V2		1-05 *											393
LINE15T/LOGIC				1									23-2/8		393

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS				LEGEND		QUANTITY / VARIATION												
SOFTWARE LIST				D	DOCUMENT													
MADE BY <i>John McNamee</i>		CHECKED <i>[Signature]</i>		DN	DOCUMENT CHANGE NOTICE													
DATE <i>2-21-73</i>		DATE <i>1/22/73</i>		PA	PAPER TAPE ASCII													
ENG <i>John McNamee</i>		PROD <i>[Signature]</i>		PB	PAPER TAPE BINARY													
DATE <i>2-21-73</i>		DATE <i>2-21-73</i>		PM	PAPER TAPE READ-IN-MODE													
ITEM NO.	DWG NO. / PART NO.	DESCRIPTION			DH11-AA	DH11-AB	DH11-AC	DH11-AD	DH11-AE				KIT CHECK	BY	DATE	INSTALLATION CHECK	BY	DATE
1.	MAINDEC-11-DZDHA-A-D	DH11 STATIC LOGIC TEST			1	1	1	1	1									
2.	MAINDEC-11-DZDHA-A-PB	DH11 STATIC LOGIC TEST			1	1	1	1	1									
3.	MAINDEC-11-DZDHB-A-D	DH11 MEMORY TEST			1	1	1	1	1									
4.	MAINDEC-11-DZDHB-A-PB	DH11 MEMORY TEST			1	1	1	1	1									
5.	MAINDEC-11-DZDHC-A-D	DH11 TRANSMITTER AND RECEIVER LOGIC TEST			1	1	1	1	1									
6.	MAINDEC-11-DZDHC-A-PB	DH11 TRANSMITTER AND RECEIVER LOGIC TEST			1	1	1	1	1									
7.	MAINDEC-11-DZDHD-A-D	DH11 SPEED SELECTION LOGIC TEST			1	1	1	1	1									
8.	MAINDEC-11-DZDHD-A-PB	DH11 SPEED SELECTION LOGIC TEST			1	1	1	1	1									
9.	MAINDEC-11-DZDHE-A-D	DH11 CHARACTER LENGTH AND BASIC DATA TEST			1	1	1	1	1									
10.	MAINDEC-11-DZDHE-A-PB	DH11 CHARACTER LENGTH AND BASIC DATA TEST			1	1	1	1	1									
11.	MAINDEC-11-DZDHF-A-D	DH11 SINGLE LINE DATA TEST			1	1	1	1	1									
12.	MAINDEC-11-DZDHF-A-PB	DH11 SINGLE LINE DATA TEST			1	1	1	1	1									
13.	MAINDEC-11-DZDHG-A-D	DH11 MULTI LINE DATA TEST			1	1	1	1	1									
14.	MAINDEC-11-DZDHG-A-PB	DH11 MULTI LINE DATA TEST			1	1	1	1	1									
15.	MAINDEC-11-DZDHH-A-D	DH11 AUTO-ECHO TEST			1	1	1	1	1									
16.	MAINDEC-11-DZDHH-A-PB	DH11 AUTO-ECHO TEST			1	1	1	1	1									
17.	MAINDEC-11-DZDHI-A-D	DH11 BREAK AND HALF-DUPLEX TEST			1	1	1	1	1									
18.	MAINDEC-11-DZDHI-A-PB	DH11 BREAK AND HALF-DUPLEX TEST			1	1	1	1	1									
19.	MAINDEC-11-DZDHJ-A-D	DH11 ON-LINE TEST			1	1	1	1	1									
20.	MAINDEC-11-DZDHJ-A-PB	DH11 ON-LINE TEST			1	1	1	1	1									
21.	MAINDEC-11-DXQLD-REV D	DH11 COMMUNICATION EXERCISER LISTING			1	1	1	1	1									

TITLE DH11 Software List		ASSY. NO. <i>[Signature]</i>		SIZE CODE A SL		NUMBER DH11-0-7		REV. A		ECO NO DH11-00007	
SHEET 1 OF 2		DIST.									

[illegible]

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS				LEGEND		QUANTITY / VARIATION													
ACCESSORY LIST				D DOCUMENT DN DOCUMENT CHANGE NOTICE PA PAPER TAPE ASCII PB PAPER TAPE BINARY PM PAPER TAPE READ-IN-MODE															
MADE BY J. MCNAMARA DATE 2-21-73		CHECKED D. GLEZEN DATE 2-22-72		SECTION															
ENG J. MCNAMARA DATE 2-21-73		PROD S. BORENSTEIN DATE 2-23-73		ISSUED SECT.															
ITEM NO.	DWG NO. / PART NO.		DESCRIPTION			DH11-AA	DH11-AB	DH11-AC	DH11-AD	DH11-AE				KIT CHECK	BY	DATE	INSTALLATION CHECK	BY	DATE
1.	DEC-11-HDHAA-B-D		DH11 Asynchronous 16-line Programmable Mux Manual			1	1	1	1	1									
2.	ZJ-114 -RB		Software (Libkit contains items listed on A-SL-																
			DH11-O-7)			1	1	1	-	1									
3.	DH11 print set A		Customer Print Set (DH11-AA,AB,AC.)			1	1	1	-	-									
4.	DH11 print set B		Customer Print Set (DH11-AD,AE)			-	-	-	1	1									
5.	ZJ179-RB		DH11-AD Software Kit (contains items																
			Listed On A-SL-DH11-O-7)			-	-	-	1	-									
6.	T8611		M5906 Test Connector			-	-	-	2	2									
7.	T861		Modem Control Test Connector			-	-	-	1	-									
8.	T815		Distribution Panel Output Test Connector			-	-	-	1	1									
TITLE DH11-A Accessory List				ASSY. NO. / /		SIZE CODE A AL		NUMBER DH11-0-6				REV. D		ECO NO DH11-00007					
				SHEET 1 OF 1		DIST.													

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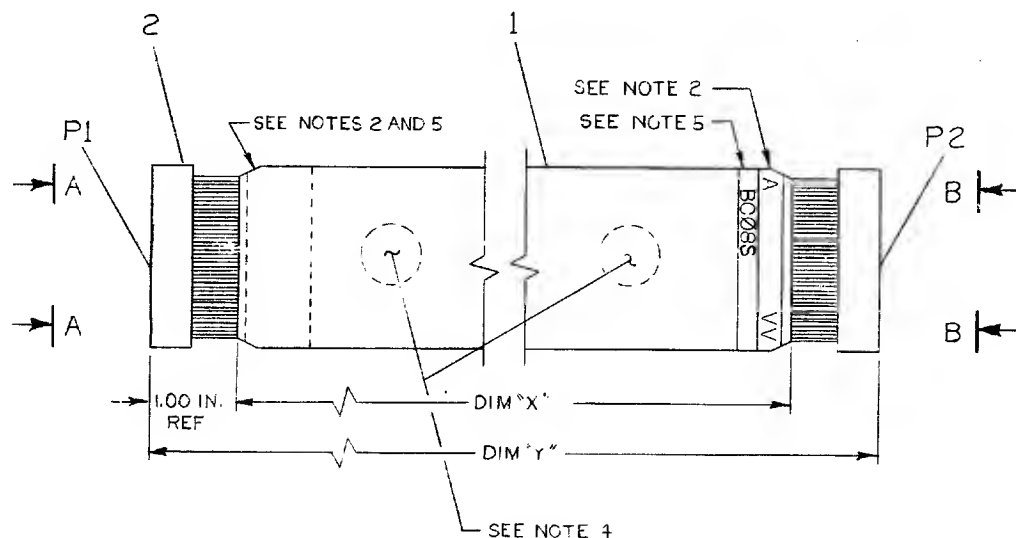
LEGEND

NUMBER	DIM "X" VAR	DIM "Y" REF
BC08S-1	10.00 IN. ± 1.00 IN.	1.00 FT. ± 1.00 IN.
BC08S-1B	14.00 IN. ± 1.00 IN.	16.00 IN. ± 1.00 IN.
BC08S-1K	2.00 FT. 9.00 IN. ± 1.00 IN.	2.00 FT. 11.00 IN. ± 1.00 IN.
BC08S-5L	70.00 IN. ± 1.50 IN.	72.00 IN. ± 1.50 IN.
BC08S-7	7.00 FT. ± 2.00 IN.	70.00 FT. 2.00 IN. ± 2.00 IN.
BC08S-8	8.00 FT. ± 2.00 IN.	80.00 FT. 2.00 IN. ± 2.00 IN.
BC08S-9	9.00 FT. ± 2.00 IN.	90.00 FT. 2.00 IN. ± 2.00 IN.
BC08S-10	10.00 FT. ± 2.00 IN.	10.00 FT. 2.00 IN. ± 2.00 IN.
BC08S-11	11.00 FT. ± 3.00 IN.	11.00 FT. 2.00 IN. ± 3.00 IN.
BC08S-12	12.00 FT. ± 3.00 IN.	12.00 FT. 2.00 IN. ± 3.00 IN.
BC08S-13	13.00 FT. ± 3.00 IN.	13.00 FT. 2.00 IN. ± 3.00 IN.
BC08S-14	14.00 FT. ± 3.00 IN.	14.00 FT. 2.00 IN. ± 3.00 IN.
BC08S-15	15.00 FT. ± 5.00 IN. - 0.00 IN.	15.00 FT. 2.00 IN. ± 5.00 IN.
BC08S-16	16.00 FT. ± 3.00 IN.	16.00 FT. 2.00 IN. ± 3.00 IN.
BC08S-17	17.00 FT. ± 3.00 IN.	17.00 FT. 2.00 IN. ± 3.00 IN.
BC08S-18	18.00 FT. ± 3.00 IN.	18.00 FT. 2.00 IN. ± 3.00 IN.
BC08S-19	19.00 FT. ± 3.00 IN.	19.00 FT. 2.00 IN. ± 3.00 IN.
BC08S-20	20.00 FT. ± 3.00 IN.	20.00 FT. 2.00 IN. ± 3.00 IN.
BC08S-25	25.00 FT. ± 3.00 FT.	25.00 FT. 2.00 IN. ± 3.00 IN.
BC08S-30	30.00 FT. ± 0.400 FT.	30.00 FT. 2.00 IN. ± 0.400 FT.
BC08S-35	35.00 FT. ± 0.700 FT.	35.00 FT. 2.00 IN. ± 0.700 FT.
BC08S-50	50.00 FT. ± 1.000 FT.	50.00 FT. 2.00 IN. ± 1.000 FT.
BC08S-Z	2.00 FT. ± 1.00 IN.	2.00 FT. 2.00 IN. ± 1.00 IN.

NOTES:

- CONNECTORS P1 AND P2, ARE TO BE WIRED POINT TO POINT.
- CONNECTOR LEGEND IDENTIFICATION TO BE PLACED ON SHIELD SIDE OF CABLE AT ONE END, AND WIRE SIDE OF CABLE ON THE OTHER END.
- MUST BE ASSEMBLED TO PROCESS SPECIFICATION 7606485-0-0.
- INSPECTION AND TEST STAMPS TO BE PLACED AT EACH END OF THE CABLE ASSEMBLY.
- THE NUMBER BC08S MUST BE ON THE CABLE IN CONJUNCTION WITH CONNECTOR LEGEND IDENTIFICATION.

VIEW A-A
CONN. LEGEND REF



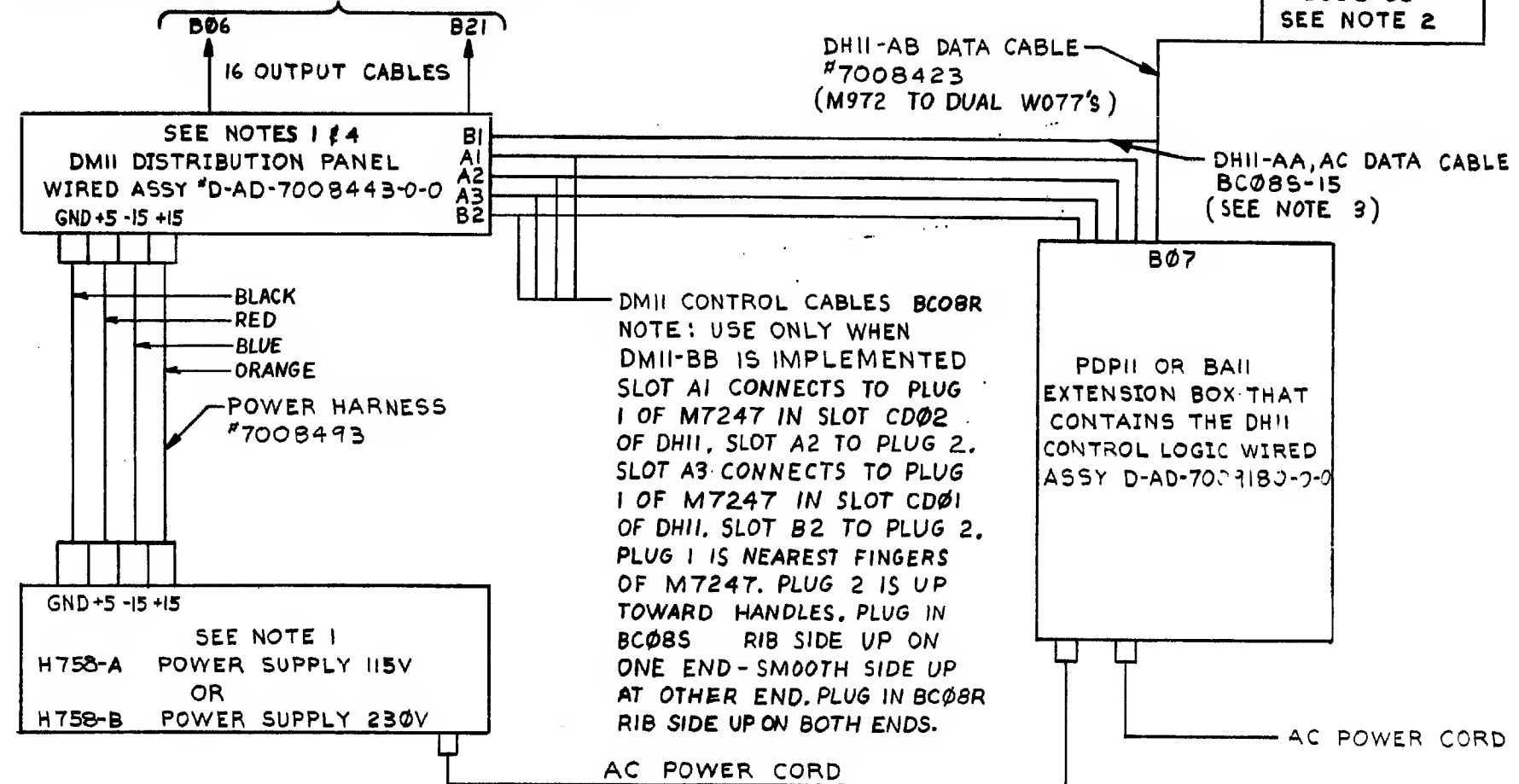
VIEW B-B
CONN. LEGEND REF

REV	DATE	BY	CHKD	APP'D	DESCRIPTION
1	12/1/76	S. HOLAN			REVISED AND REDRAWN
2	12/1/76	F. J. DE WYER			REVISED AND REDRAWN

2	CONNECTOR, 40 SOCKET	1211206	2
1	CABLE, FLAT 40 COND	1700004	1
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES			
APPROX. 1/2" 30"			
SURFACE QUALITY IN			
QUANTITY & VARIATION			
THIRD ANGLE PROJECTION			
REMOVE BURRS AND BREAK SHARP CORNERS			
DO NOT SCALE DIMS			
MATERIAL			
FINISH			
DRAWN: J. FERRELL 5-12-71			
CHK'D: D.K. CRABBE 5-13-71			
ENG: O.K. CRABBE 5-13-71			
PRD: P. FAZIO 5-21-71			
TITLE: I/O CABLE ASS'Y (DIAG. JUMPER)			
SIZE: 11A			
CODE: BC08S-0-0			
SHEET: 1 OF 1			

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OUTPUT CABLES ARE EITHER BC01R-25 IF EIA OR M973 MATE-N-LOCK CONNECTOR CARD FOR PDP-11 TTY
NOTE: NEITHER ITEM SUPPLIED WITH DH11-AA

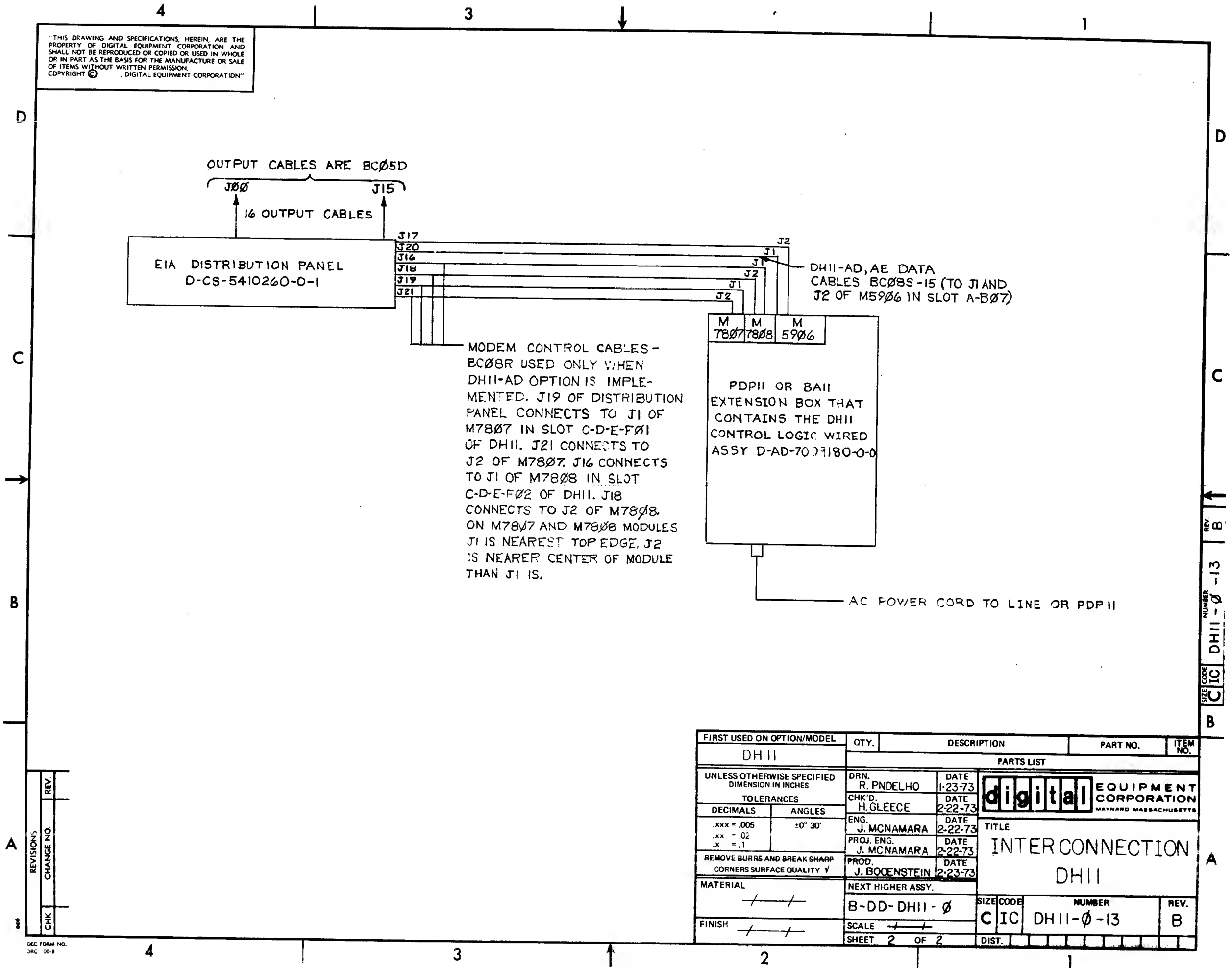


- NOTES:
1. DISTRIBUTION PANEL 7008443 AND POWER SUPPLY H758 SUPPLIED ONLY WITH DH11-AA, DH11-AC
 2. DC08 CS MUST BE ORDERED SEPARATELY DH11-AB DATA CABLE PLUGS INTO SLOTS A31, A32 OF DC08 CS FOR LINES 00 TO LINE 15 OF DC08 CS. A SECOND DH11-AB PLUGS INTO THE DC08 CS AT SLOTS B31, B32 FOR LINES 16 TO 31. THE W077 CONNECTED TO SIDE 1 OF M972 GOES TO A31 (B31). W077 CONNECTED TO SIDE 2 OF M972 GOES TO A32 (B32).
 3. A BC08S IS WIRED STRAIGHT POINT TO POINT. A BC08R IS WIRED MIRROR IMAGE: PIN A AT ONE END IS PIN VV AT OTHER END.
 4. WIRED ASSY 7008443 PLUS POWER WIRING, END PANELS & HOLD DOWN BAR ADDED ON PRODUCTION FLOOR IS 7008456 LOGIC ASSY.
 5. FOR DH11-AD, -AE OPTIONS, SEE SHEET 2.

REV.	CHANGE NO.	DATE	BY	CHK
A	00002	7-12-73	J. MCNAMARA	
B	00007	8-6-73	J. MCNAMARA	
C	00010	10-31-74	J. MCNAMARA	
D	00011	11-5-74	J. MCNAMARA	

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
DH11				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES	DRN	DATE	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
TOLERANCES	CHK'D	DATE	TITLE	
DECIMALS	ENG	DATE	INTERCONNECTION	
ANGLES	PROJ. ENG.	DATE	DH11	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PROD.	DATE	REV.	
MATERIAL	NEXT HIGHER ASSY.		SIZE CODE	NUMBER
FINISH			C IC	DH11-0-13
			SCALE	B
			SHEET 1 OF 2	DIST.

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REV.	CHANGE NO.	CHK

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
DH11				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES	DRN. R. PNDELHO	DATE 1-23-73	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS	
TOLERANCES	CHK'D. H. GLEECE	DATE 2-22-73		
DECIMALS	ENG. J. MCNAMARA	DATE 2-22-73	TITLE INTER CONNECTION DH11	
ANGLES	PROJ. ENG. J. MCNAMARA	DATE 2-22-73		
.xxx = .005 .xx = .02 .x = .1	PROD. J. BOONSTEIN	DATE 2-23-73		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY V	NEXT HIGHER ASSY.			
MATERIAL	B-DD-DH11-Ø	SIZE CODE C IC	NUMBER DH11-Ø-13	REV. B
FINISH	SCALE	SHEET 2 OF 2		

ITEM NO.	DESCRIPTION	FROM	TO	REMARKS	
NO.	WING	COLOR	CONNECTION WITH	CONNECTION WITH	
36	# 18	BLU	T8Z-1S	# 30 J2-1	# 62 WIRE #1/LG
35	# 18	ORN	T8Z-1S	# 30 J2-2	# 62 WIRE #1/LG
34	# 18	BLK	T8Z-2ND	# 30 J2-3	# 62 WIRE #1/LG
33	# 18	RED	T8Z-1S	# 30 J2-4	# 62 WIRE #1/LG

WIRE TABLE

VIEW B-B

3 PLACES

13 56

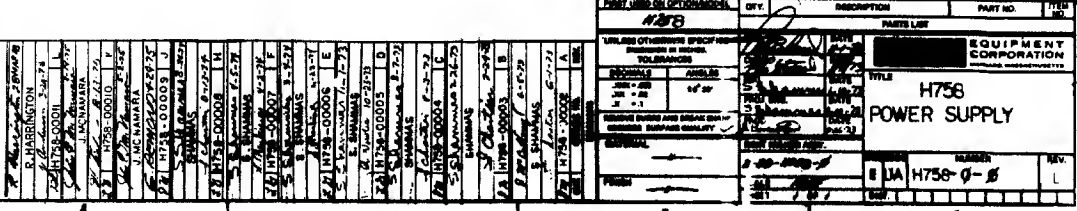
33 REF

33 37

77

SEE DRAWING 10

1. ITEM #68 TO BE SUPPLIED AS LOOSE
ITEM
2. FAN IS MOUNTED ON REAR SIDE
OF CHASSIS DIRECTLY IN LINE WITH 3
PAPER STICKERS
3. ITEM #39 (DECAT LETTER 'A') IS PLACED OVER
LETTER 'A' OF ITEM #2
4. ITEM #40 (DECAT 230VAC 15F (#758B)) IS PLACED
OVER (115 VAC 3ACHT58A1)
5. 115V VERSION LIGHT HAS TWO BLACK LEADS
CONNECT ONE TO S1-C AND THE OTHER
TO S1-D.
6. PAPER IS PEELD OFF ITEM #38 AND ITEM #38
IS PLACED STICKY SIDE DOWN WHERE
INDICATED, DIRECTLY OVER SCREW HOLES.
7. MOUNT 1 A#64 ON LOWER ROW OF TB1
PLACING ONE EACH ON LUGS 2, 3, 5, 6 AND
TWO EACH ON LUGS 1 & 4. ITEM #44 ON
LUGS 1 & 4 SHOULD FACE IN OPPOSITE
DIRECTIONS ALSO MOUNT 2 ITEMS #72 FACING
UP ON LUGS 112 OF TOP ROW.
8. ITEM #70 USES 2 OF ITEMS 10 AND 11.



DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS					QUANTITY / VARIATION														
PARTS LIST																			
MADE BY John McNamara			CHECKED K. GLEEZEN		SECTION														
DATE 2-22-73			DATE 2-22-73																
ENG John McNamara			PROD B. DIGREGORIO		ISSUED SECT.														
DATE 2-22-73			DATE 2-22-73																
ITEM NO.	DWG NO. / PART NO.	DESCRIPTION			DH11-AA	DH11-AB	DH11-AC	DH11-AD	DH11-AE										
1.	M7277	Current Address and Address Select			1	1	1	1	1										
2.	M7278	Registers and Byte Count			1	1	1	1	1										
3.	M7279	FIFO Buffer			1	1	1	1	1										
4.	M7280	Multiple UARTs			2	2	2	2	2										
5.	M7288	Line Parameter Control			1	1	1	1	1										
6.	M7289	System Control and Receiver Scan			1	1	1	1	1										
7.	G7360	Priority Selector			1	1	1	-	-										
8.	5408778	Priority Jumper Plug-Level #5			2	2	2	2	2										
9.	M4540	DH11 DC11 Clock			1	1	1	1	1										
10.	M7821	Interrupt Control			2	2	2	2	2										
11.	M796	Unibus Master Control			1	1	1	1	1										
12.	M920	Internal Bus Connector			1	1	1	1	1										
13.	M971	Cable Interface			2	-	2	-	-										
14.	M974	DM11 Maintenance Jumper			1	1	1	-	-										
15.	G727	Grant Continuity Card			1	1	1	1	1										
16.	M5906	EIA CONVERSION AND PRIORITY SELECTION			-	-	-	1	1										
17.	M7807	BUS CONTROL+MUX (MODEM CONTROL)			-	-	-	1	-										
18.	M7808	MODEM CONTROL			-	-	-	1	-										
TITLE DH11 Module Utilization (PL)			ASSY NO. B-DD-DH11-0		SIZE A	CODE PL	NUMBER DH11-0-3				REV. D	ECO NO. DH11-0007							
			SHEET 1 OF 1		DIST.														

8 7 6 5 4 3 2 1
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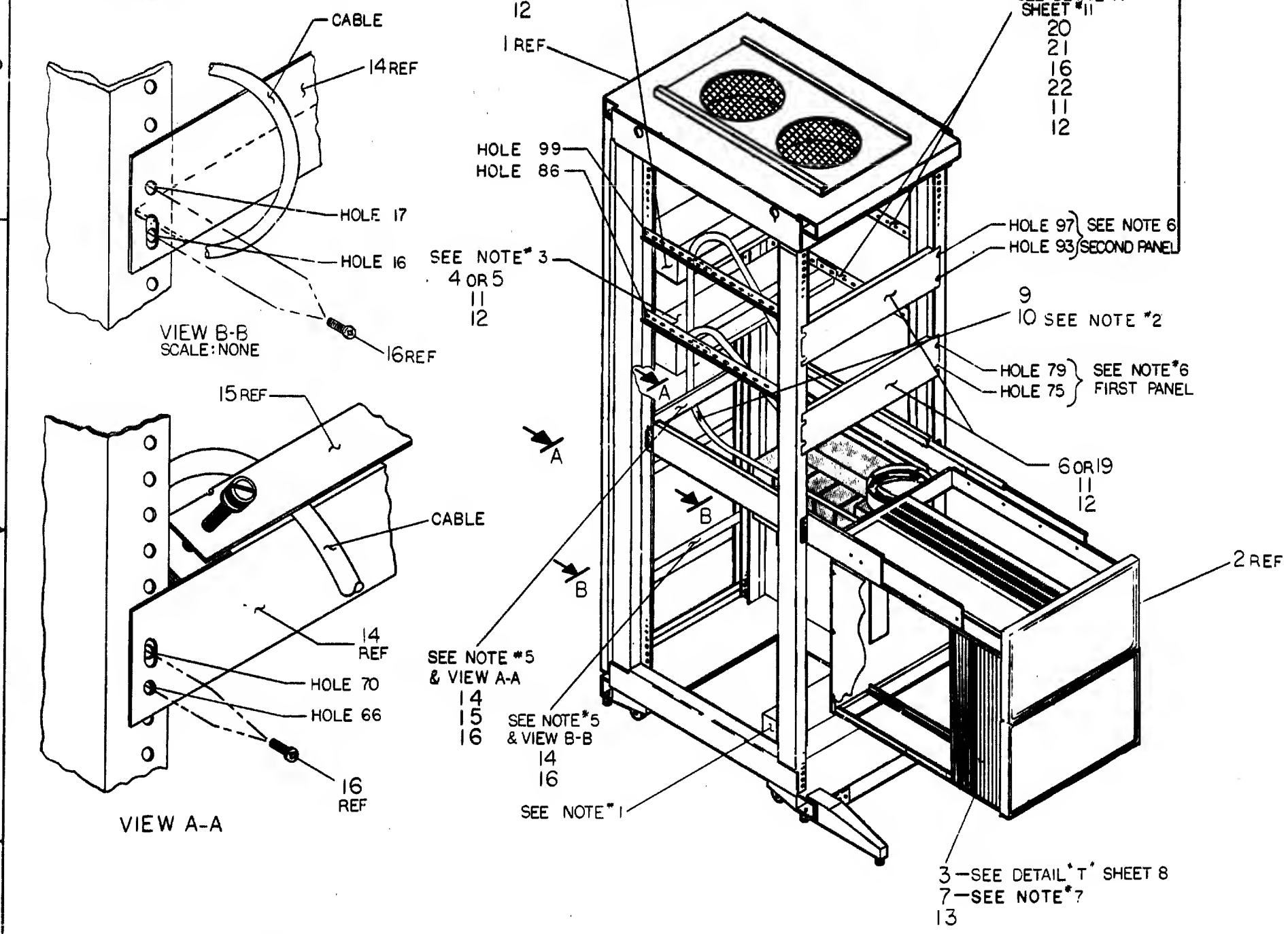
8. FOR ITEMS 4 & 5 H739A AND H739B MAY BE SUBSTITUTED.

- NOTES:
1. 861 POWER CONTROL MUST BE LOCATED AT FRONT OF CABINET TO ALLOW CABLES FROM ITEM 60R19 TO SWEEP BEHIND AND UNDER ITEM 2.
 2. ITEM #10 IS USED WHEN A DM11-BB IS INSTALLED, OR WITH A DH11-AD.
 3. INSTALL THIS POWER SUPPLY FOR FIRST DH11, HOLES 75, 79.
 4. INSTALL THIS POWER SUPPLY FOR SECOND DH11, HOLES 93, 97.
 5. EACH H960 CONTAINING A DH11 SHALL HAVE ONE STRAIN RELIEF (ITEM 14) AND CLAMP (ITEM 15) FOR BC08R+S CABLES AND ONE STRAIN RELIEF AT THE LOWER REAR OF CABINET, SEE VIEW 'A-A' AND 'B-B'. RETURN EXTRA ITEMS 14+15 TO STOCKROOM.
 6. A CABINET THAT CONTAINS AN EXPANDER BOX CANNOT HAVE MORE THAN TWO DISTRIBUTION PANELS (ITEMS 6 OR 19). FOR DH11 SYSTEMS WITH THREE OR MORE DISTRIBUTION PANELS, A SEPARATE CABINET MUST BE USED. UP TO FOUR PANELS CAN BE MOUNTED INTO CABINETS WITHOUT AN EXPANDER BOX.
 7. FOR 11/35-11/40 CPU WITH SERIAL NO. LESS THAN 6000 OR H960-D,E WITH SERIAL NO. LESS THAN 7000 USE POWER HARNESS 7009466.

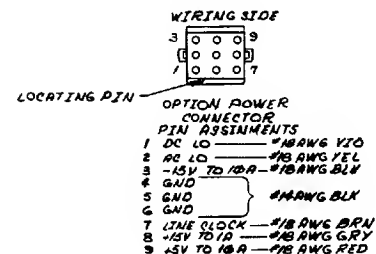
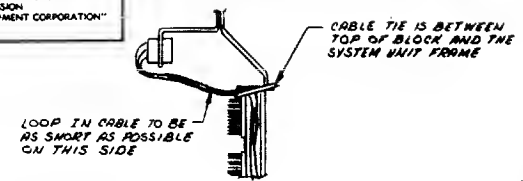
DH11-AE	DH11-AD	DH11-AB	DH11-AC	DH11-AA		
4	4	4	4	4	SCR. PHIL PAN HD 8-32X3/8	9006037-1 24
1	1	1	1	1	SUPPORT HARNESS	7010167 23
4	4	-	4	4	WASHER, LOCK #10 EXT.	9007651 22
1	1	-	1	1	CROSS BAR CABLE BKT.	DMD-7408500-0 21
2	2	-	2	2	SIDE BAR SUPPORT	G-1A-7408283-0-0 20
1	1	-	-	-	H317-B CABLE BOX ASSY	D-UA-H317-0-0 19
8	8	8	8	8	WASHER, LOCK #8 EXT TOOTH	9008072 18
-	-	1	-	-	M972 TO DUAL W077 CABLE	D-1A-7008423-0-0 17
4	4	-	4	4	SCR. PHIL PAN HD 10-32X3/8 LG	9006071 16
1	1	-	1	1	CLAMP, STRAIN RELIEF	G-1A-7411633-0-0 15
1	1	-	1	1	STRAIN RELIEF	G-1A-7411638-0-0 14
4	4	4	4	4	SCR. PHIL PAN HD 8-32-1 LG	9006043-1 13
8	8	-	12	12	SCR. PHIL PAN HD 10-32-5/8 LG	9006074-1 12
8	8	-	12	12	NUT, TINNEMAN #10-32	9007786 11
-	4	-	REF	REF	I/O CABLE (BC08R) (NOTE 2)	C-UA-BC08R-0-0 10
2	2	-	1	1	I/O CABLE ASSY (BC08S)	C-1A-BC08S-15-0 9
-	-	-	1	1	POWER HARNESS	D-1A-7008493-0-0 8
1	1	1	1	1	DH11 OPTION HARNESS	D-1A-7008561-0-0 7
-	-	-	1	1	LOGIC ASSY	C-1A-7008456-0-0 6
-	-	-	1	-	POWER SUPPLY (NOTE 8)	D-UA-H758-B-0 5
-	-	-	-	1	POWER SUPPLY (NOTE 8)	D-UA-H758-A-0 4
1	1	1	1	1	WIRED ASSY (DH11)	D-AD-7009180-0-0 3
REF	REF	REF	REF	REF	MOUNTING BOX ASSY	D-UA-8A11-FC-0 2
REF	REF	REF	REF	REF	H960 CABINET	D-UA-H960-CD-0 1

FIRST USED ON OPTION MODEL		QTY	DESCRIPTION	PART NO.	ITEM
PDP 11					
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES		DATE 2-12-73		EQUIPMENT CORPORATION	
DECIMALS ANGLES		DATE 2-28-73		TITLE	
.XXX - .000 .XX - .00 .X - .0 30° 30'		DATE 2-28-73		BASIC ASSY	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		DATE 2-23-73		DH11 IN H960	
MATERIAL		NEXT HIGHER ASSY.		REV.	
FINISH		B-DD-DH11-0		DUA DH11-0-0 F	
SCALE		SHEET OF 14		DWT.	

REV	CHG	NO.	BY	DATE	DESCRIPTION
1		1	J. MCNAMARA	2-11-73	11/35-11/40 CPU
2		2	J. MCNAMARA	2-11-73	11/35-11/40 CPU
3		3	J. MCNAMARA	2-11-73	11/35-11/40 CPU
4		4	J. MCNAMARA	2-11-73	11/35-11/40 CPU
5		5	J. MCNAMARA	2-11-73	11/35-11/40 CPU
6		6	J. MCNAMARA	2-11-73	11/35-11/40 CPU
7		7	J. MCNAMARA	2-11-73	11/35-11/40 CPU
8		8	J. MCNAMARA	2-11-73	11/35-11/40 CPU
9		9	J. MCNAMARA	2-11-73	11/35-11/40 CPU
10		10	J. MCNAMARA	2-11-73	11/35-11/40 CPU
11		11	J. MCNAMARA	2-11-73	11/35-11/40 CPU
12		12	J. MCNAMARA	2-11-73	11/35-11/40 CPU
13		13	J. MCNAMARA	2-11-73	11/35-11/40 CPU
14		14	J. MCNAMARA	2-11-73	11/35-11/40 CPU
15		15	J. MCNAMARA	2-11-73	11/35-11/40 CPU
16		16	J. MCNAMARA	2-11-73	11/35-11/40 CPU
17		17	J. MCNAMARA	2-11-73	11/35-11/40 CPU
18		18	J. MCNAMARA	2-11-73	11/35-11/40 CPU
19		19	J. MCNAMARA	2-11-73	11/35-11/40 CPU
20		20	J. MCNAMARA	2-11-73	11/35-11/40 CPU
21		21	J. MCNAMARA	2-11-73	11/35-11/40 CPU
22		22	J. MCNAMARA	2-11-73	11/35-11/40 CPU
23		23	J. MCNAMARA	2-11-73	11/35-11/40 CPU
24		24	J. MCNAMARA	2-11-73	11/35-11/40 CPU
25		25	J. MCNAMARA	2-11-73	11/35-11/40 CPU



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POWER DISTRIBUTION (OLD VERSION)

NOTES:

1. THIS PRINT SHOWS HARNESS ARRANGMENTS FOR 11/40 AND 11/35 WITH SERIAL NO. GREATER THAN 6000 OR H960-D,E WITH SERIAL NO. GREATER THAN 7000.
2. OPTION BACKPLANES AND HARNESSES REPRESENT TYPICAL INSTALLATION. DHII USES PWR DIST HARNESS D-IA-7009561 WHEN USED IN THESE BOXES (SEE NOTE 1).
3. WHEN FOUR TERMINALS APPEAR IN TOP ROW, ORDER IS +5, +15, DC LO, AC LO. USE 7009561 REV B (WITH +15 GRAY WIRE).

POWER SUPPORT PLATE D-MD-740867E-0-0 (OLD VERSION)

OPTION PWR DIST HARNESS (SEE NOTE 2)

OPTION PWR DIST HARNESS (SEE NOTE 2)

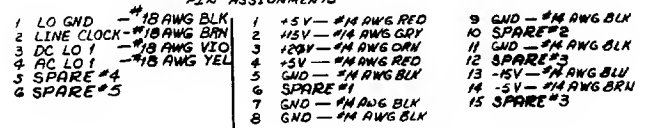
NOTE 3

POWER HARNESS E-1A-700815V-0-0 (OLD VERSION)

NOTES:

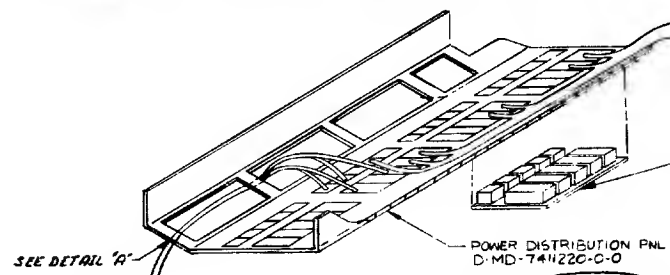
1. THIS PRINT SHOWS HARNESS ARRANGMENTS FOR 11/40 AND 11/35 WITH SERIAL NO. LESS THAN 6000 OR H960-D,E WITH SERIAL NO. LESS THAN 7000.
2. OPTION BACKPLANES AND HARNESSES REPRESENT TYPICAL INSTALLATION. DHII USES PWR DIST HARNESS D-IA-7009466 WHEN USED IN THESE BOXES (SEE NOTE 1).
3. WHEN FOUR TERMINALS APPEAR IN TOP ROW, ORDER IS +5, +15, DC LO, AC LO. TO USE 7009466, ADD GRAY WIRE FOR +15, CHANGE LENGTHS OF DC LO, AC LO.

WIRING SIDE



ADHESIVE TIE MOUNTS & CABLE TIES

ROUTE CABLE BETWEEN OPTION BACKPLANES AS CLOSE TO CHASSIS AS POSSIBLE.



NOTE 3

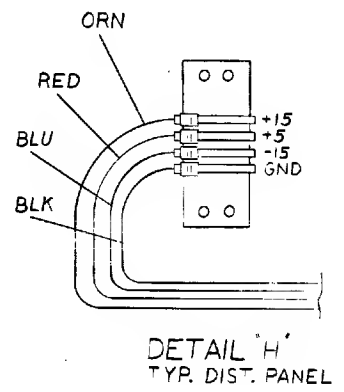
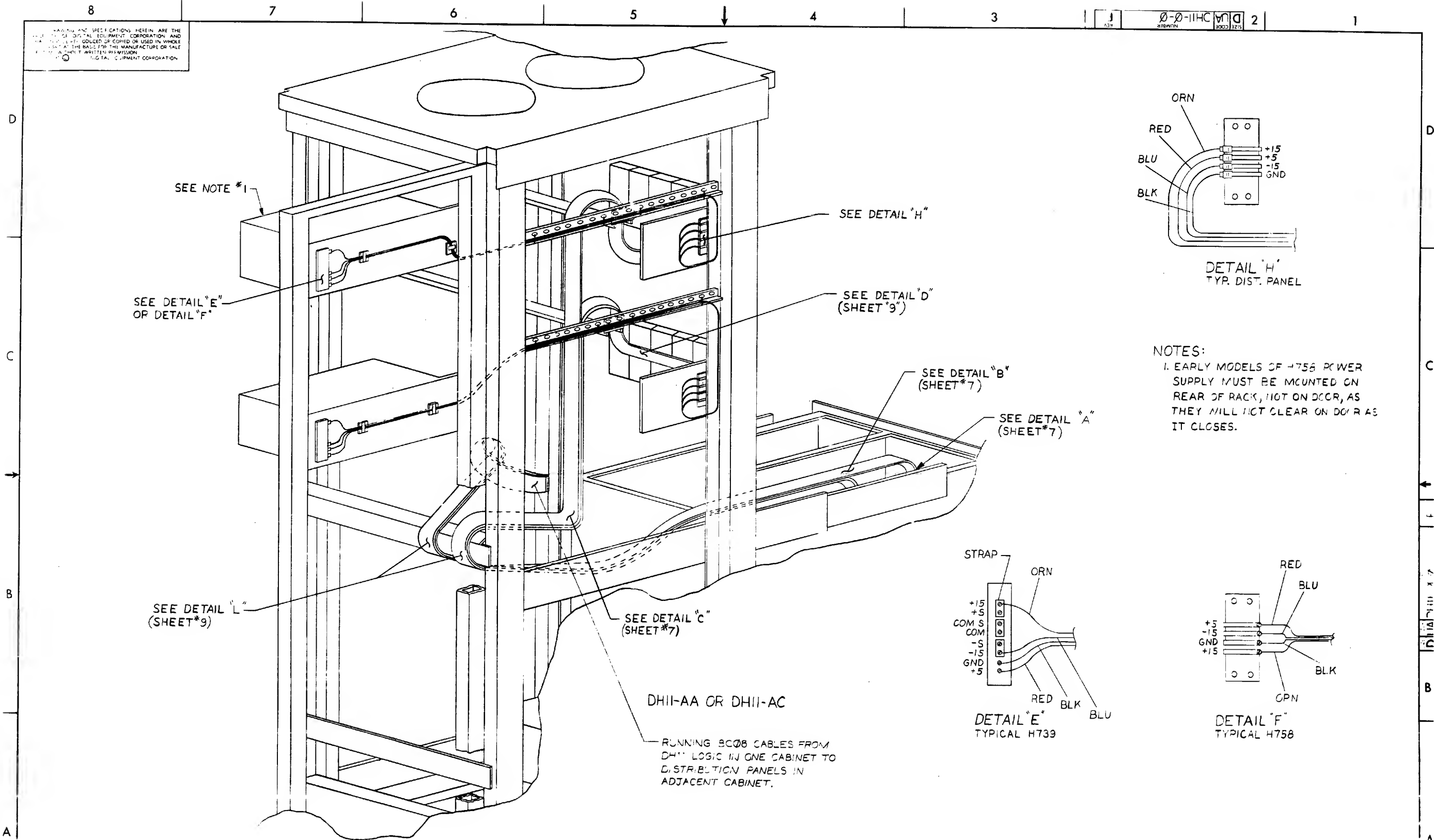
POWER HARNESS 7009566

POWER DISTRIBUTION (NEW VERSION)

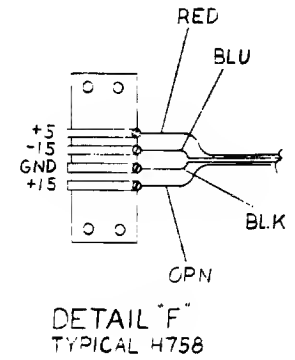
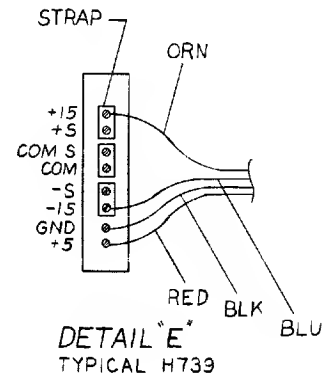
FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP11				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES	ORN. R. PUDELKO 2-12-73	DATE	PARTS LIST	
TOLERANCES	CHK'D. K. GLEZEN 2-22-73	DATE	digital EQUIPMENT CORPORATION	
DECIMALS ANGLES	ENG. J. MCNAMARA 2-22-73	DATE	TITLE	
XXX = .005	PROJ. ENG. J. MCNAMARA 2-22-73	DATE	BASIC ASSY	
XX = .02	PROD. J. BORENSTEIN 2-23-73	DATE	DHII IN H960	
X = .1				
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY 1				
MATERIAL	NEXT HIGHER ASSY.	SIZE CODE	NUMBER	REV.
FINISH	B-DD-DHII-0	DUA	DHII-0-0	F
	SCALE	SHEET 2 OF 14	DIST.	

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0-0-11HC 2



NOTES:
1. EARLY MODELS OF H758 POWER SUPPLY MUST BE MOUNTED ON REAR OF RACK, NOT ON DOOR, AS THEY WILL NOT CLEAR ON DOOR AS IT CLOSSES.



REVISIONS		
CHK	CHANGE NO	REV

CONNECTION OF POWER SUPPLIES

DETAILS: E, F, H

APPLICATION: DHII-AA, -AC

TITLE BASIC ASSEMBLY
DHII IN H960

SIZE CODE NUMBER
DUA DHII-0-0

REV.
F

SCALE NCNE

SHEET 4 OF 14

DIST.

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NOTES:

1. EARLY MODELS OF H758 POWER SUPPLY MUST BE MOUNTED ON REAR OF RACK, NOT ON DOOR, AS THEY WILL NOT CLEAR ON DOOR AS IT CLOSSES.

MODULE
RETAINING
BAR

NOTE: CABLES
CAN NOT BE
TIED TO OR
HANG IN THIS
AREA OF THE
LEFT REAR
SIDE MOUNTING
RAIL. (THEY
WILL BE
PINCHED BY
THE H758
POWER SUPPLY)

H758 P.S. CONN.

H739 P.S. CONN.
(MUST BE INSULATED)

NOTE 1

2ND

2ND

1ST

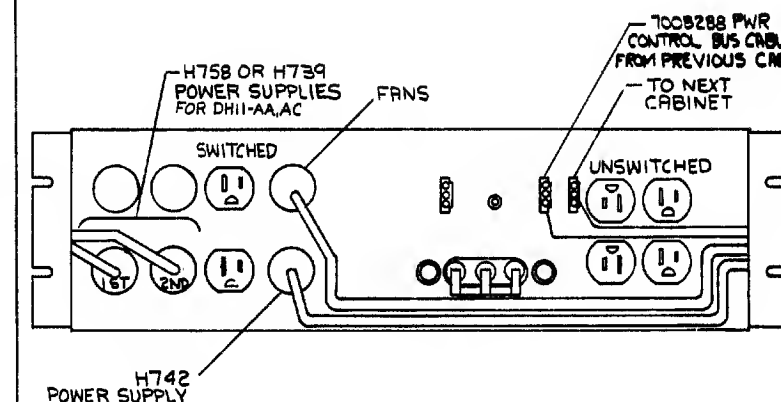
1ST

H742
P.S.

GROMMET
THIS
EDGE

M

M



VIEW M-M

POWER MAINS CONNECTIONS

DETAILS: NONE

APPLICATION: DH11-AA, AC

TITLE: BASIC ASSEMBLY
DH11 IN H960

SIZE/CODE
DUA

NUMBER
DH11-0-0

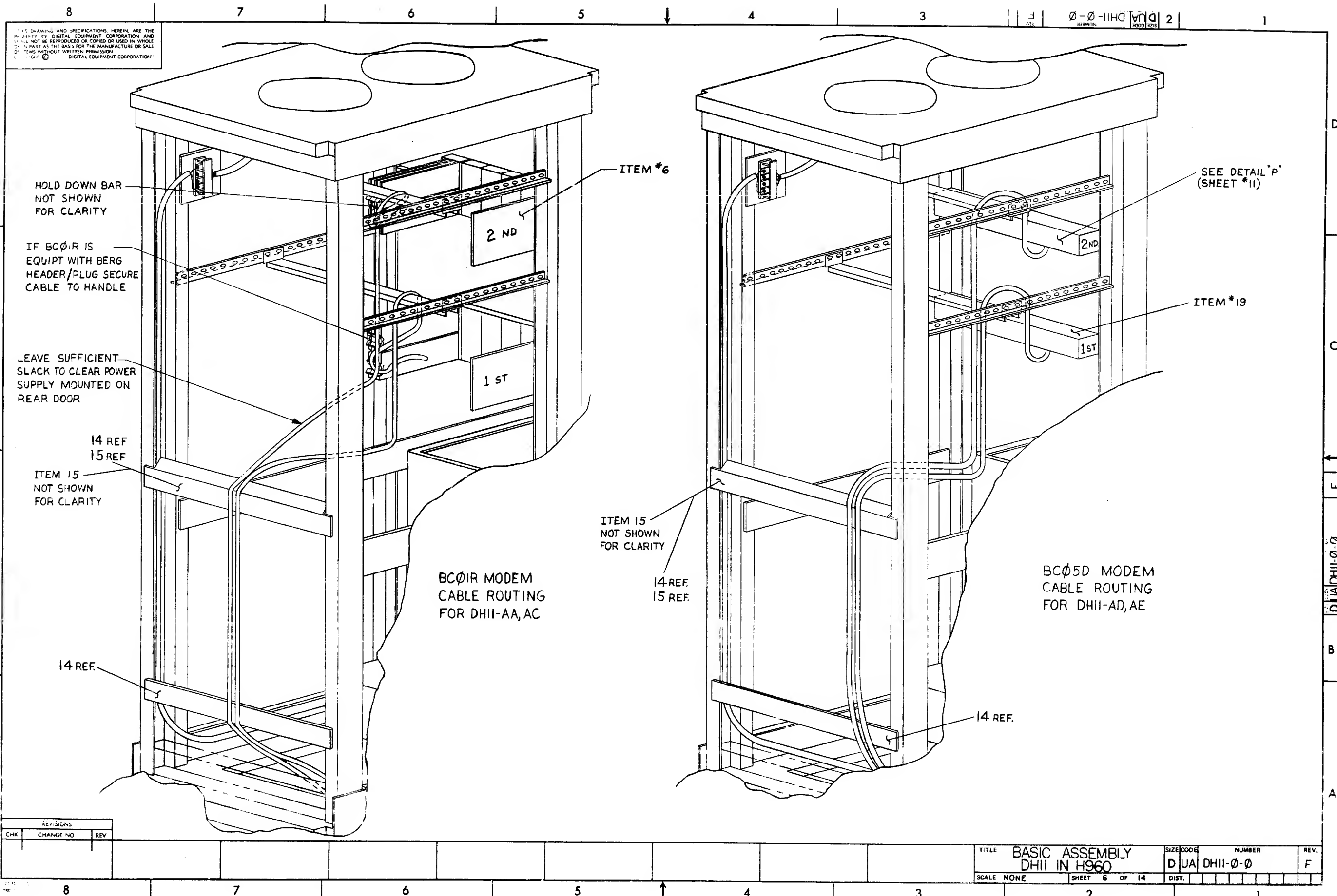
REV.
F

SCALE: NONE

SHEET 5 OF 14

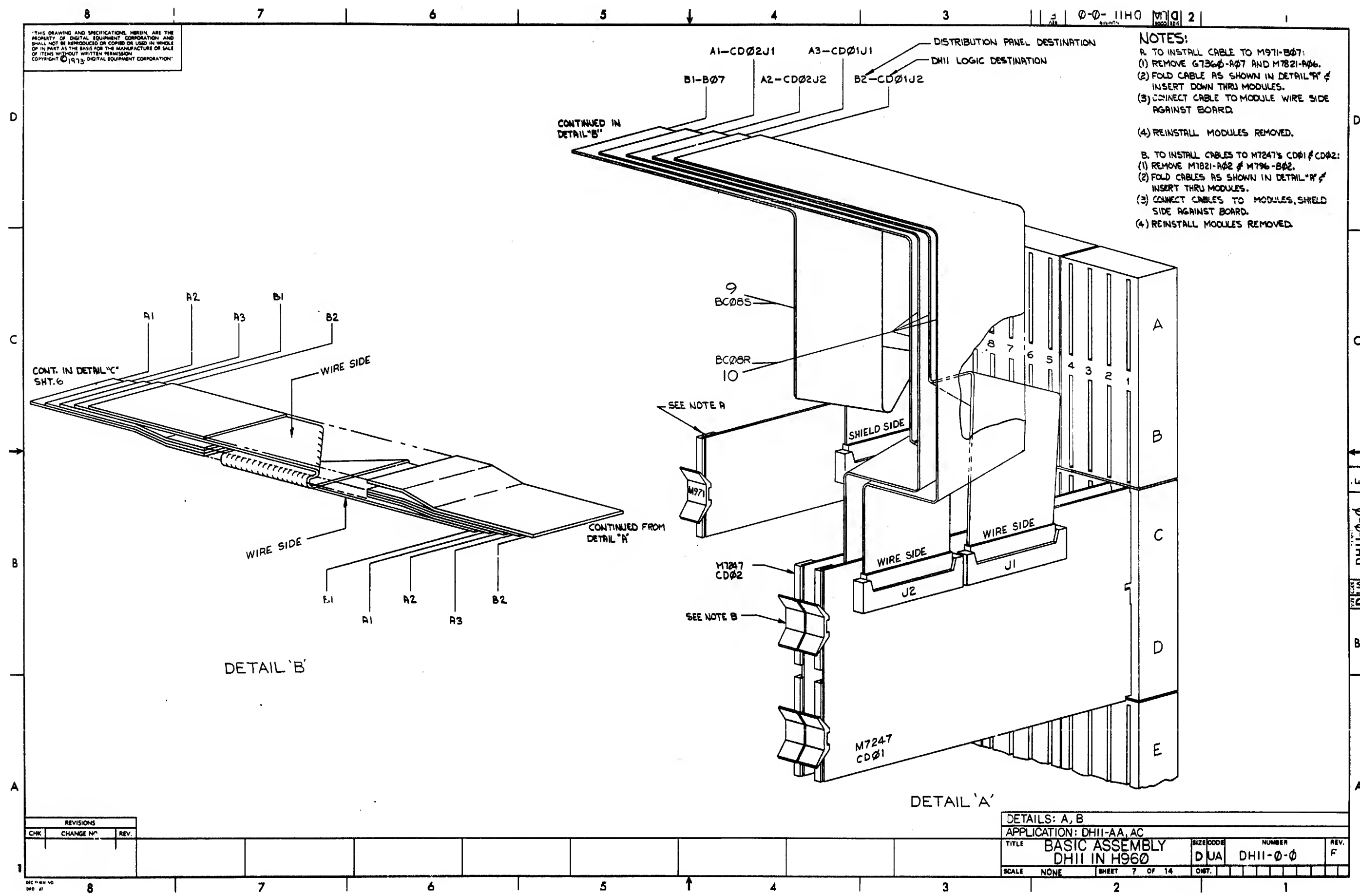
DIST.

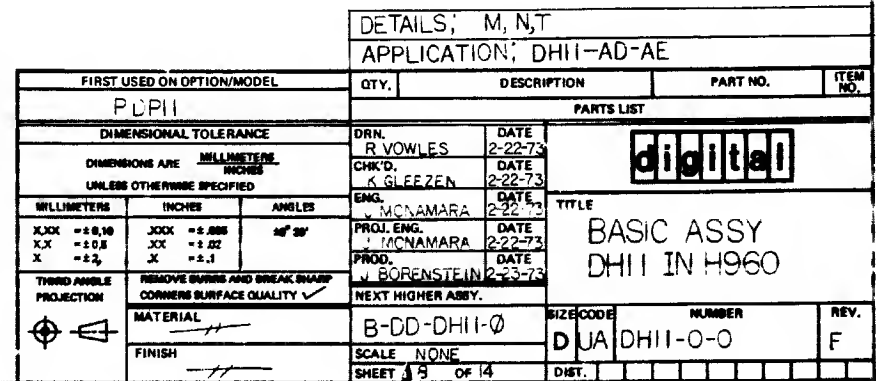
REVISIONS		
CHK	CHANGE NO.	REV.

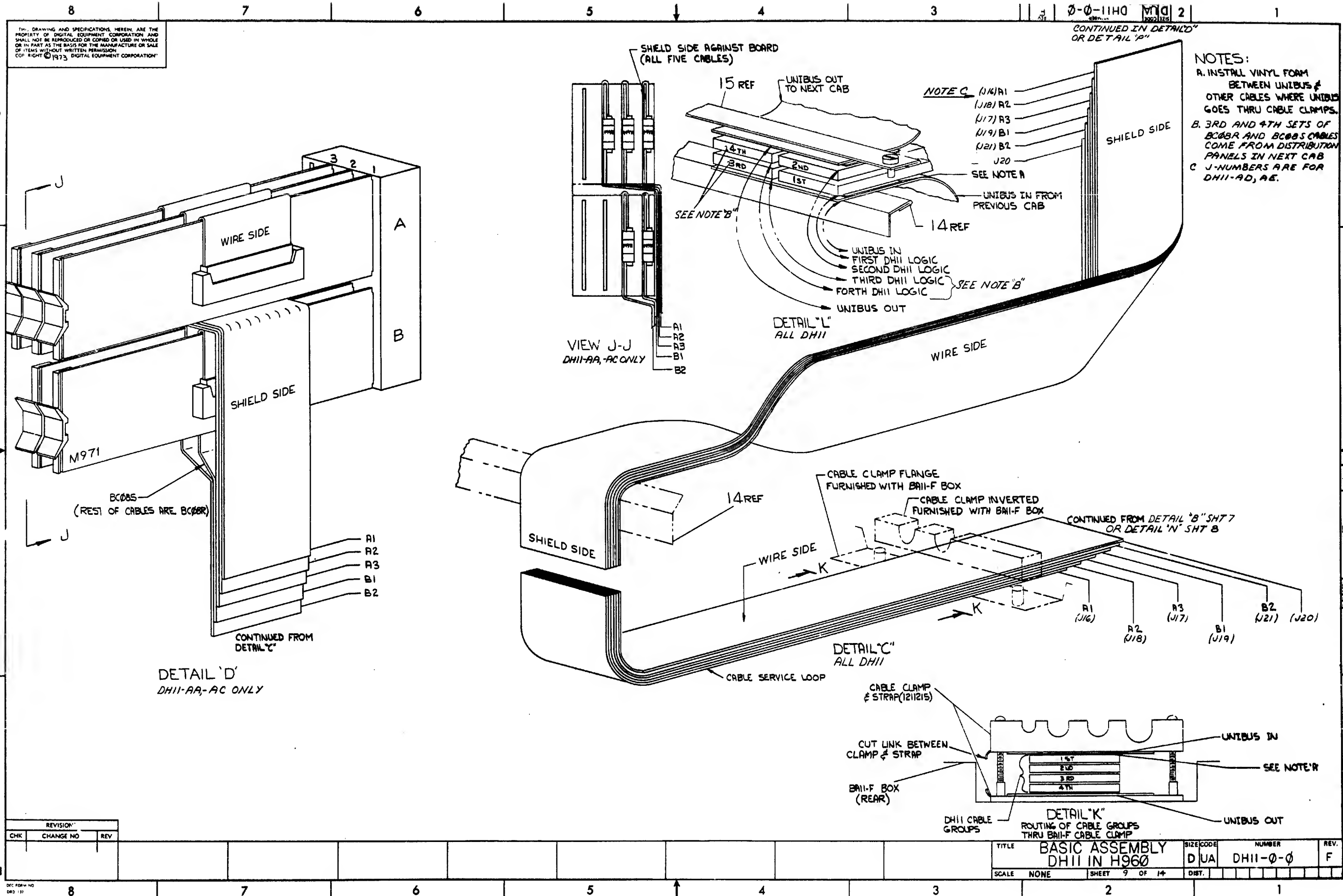


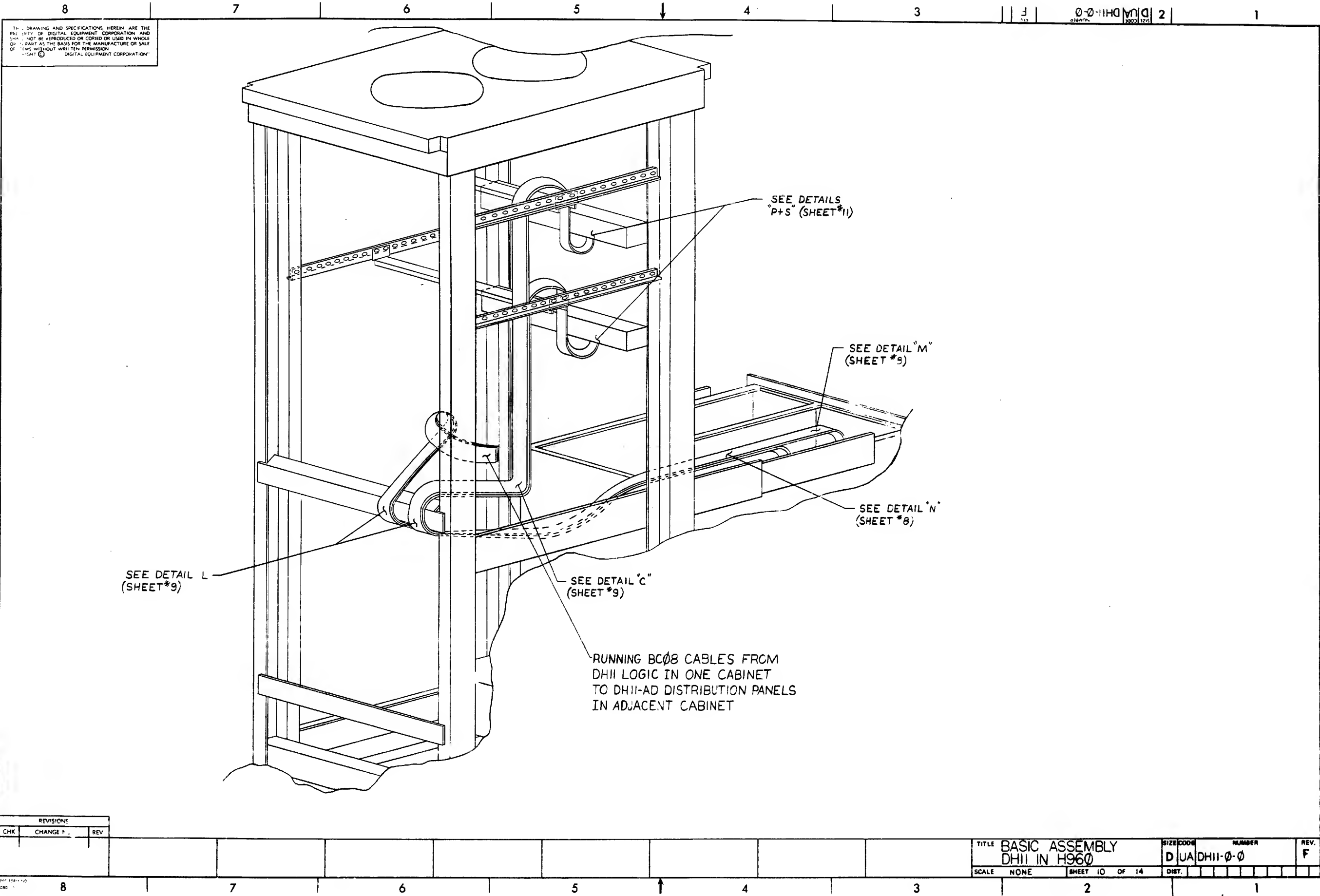
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- NOTES:**
- A. TO INSTALL CABLE TO M971-BØ7:**
- (1) REMOVE G736Ø-AØ7 AND M7821-AØ6.
 - (2) FOLD CABLE AS SHOWN IN DETAIL "A" & INSERT DOWN THRU MODULES.
 - (3) CONNECT CABLE TO MODULE WIRE SIDE AGAINST BOARD.
 - (4) REINSTALL MODULES REMOVED.
- B. TO INSTALL CABLES TO M7247'S CDØ1 & CDØ2:**
- (1) REMOVE M7821-AØ2 & M796-BØ2.
 - (2) FOLD CABLES AS SHOWN IN DETAIL "A" & INSERT THRU MODULES.
 - (3) CONNECT CABLES TO MODULES, SHIELD SIDE AGAINST BOARD.
 - (4) REINSTALL MODULES REMOVED.





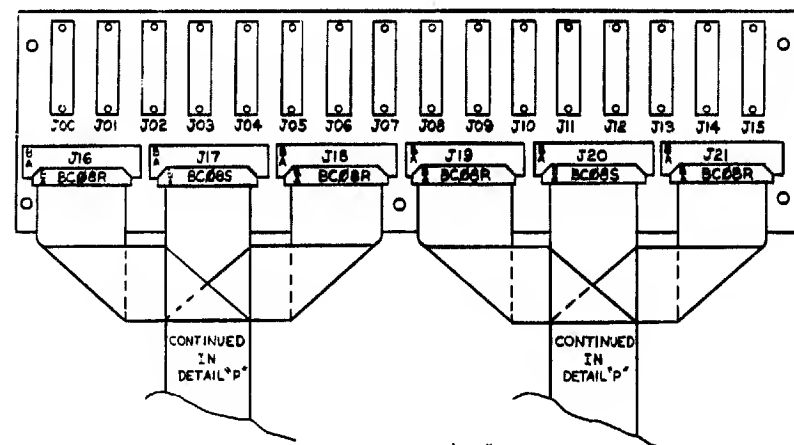




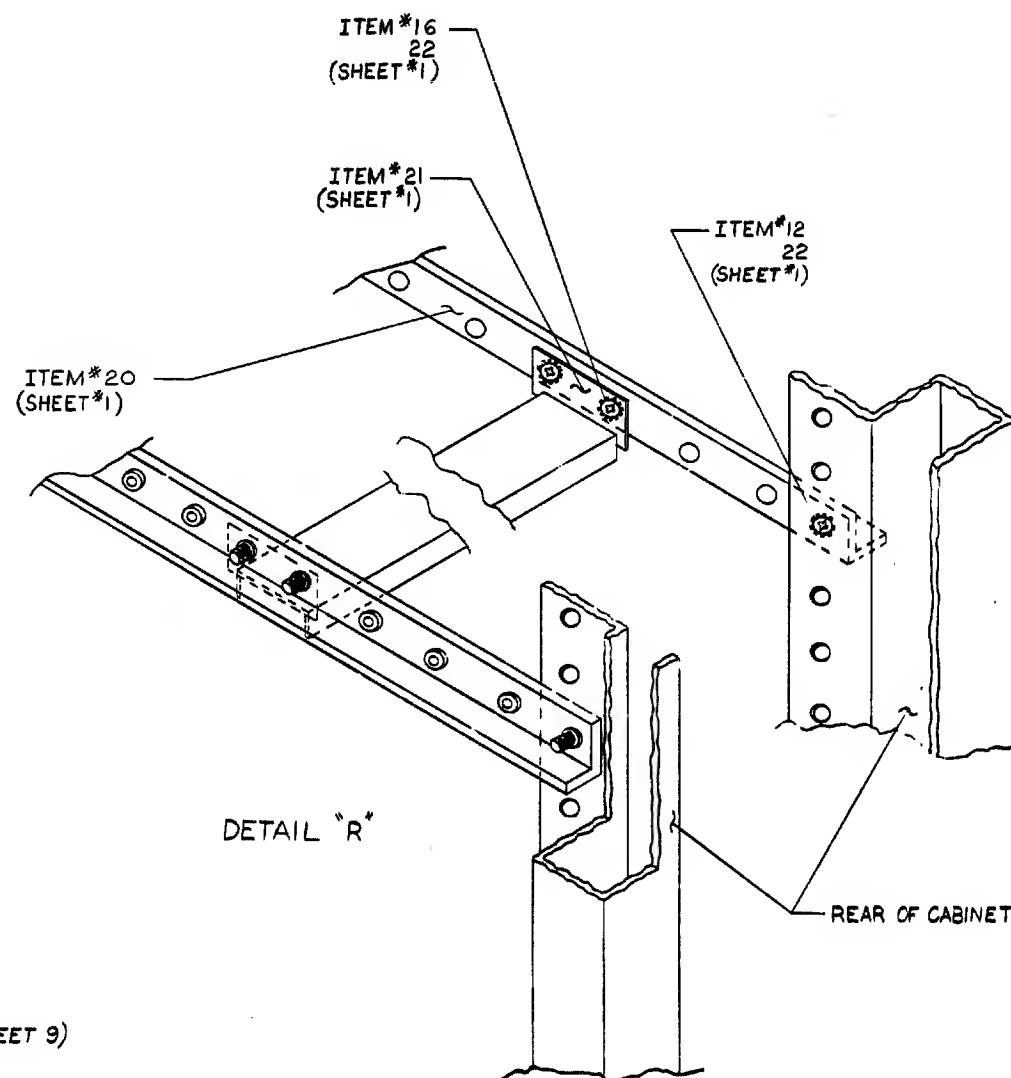
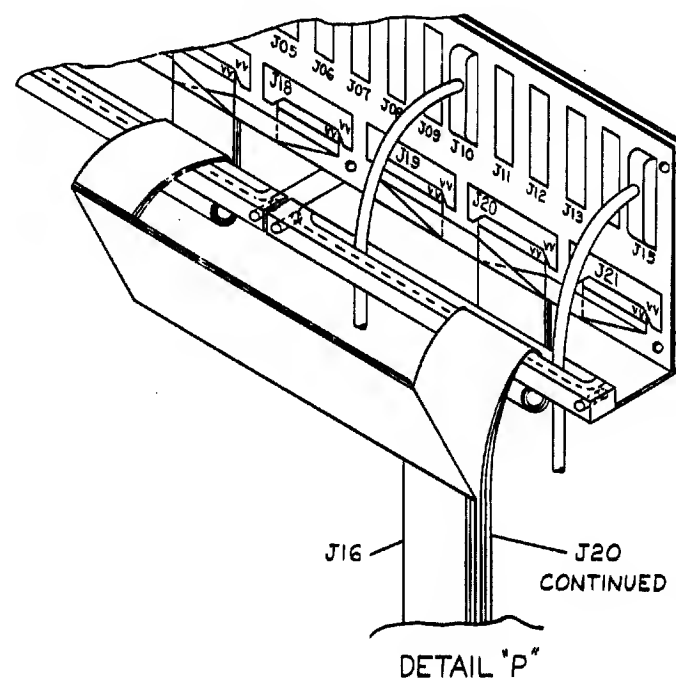
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
REVISIONS		
CHK	CHANGE P.	REV

TITLE		SIZE CODE		NUMBER		REV.
BASIC ASSEMBLY DHII IN H960		DUA		DHII-0-0		
SCALE	NONE	SHEET 10 OF 14		DIST.		



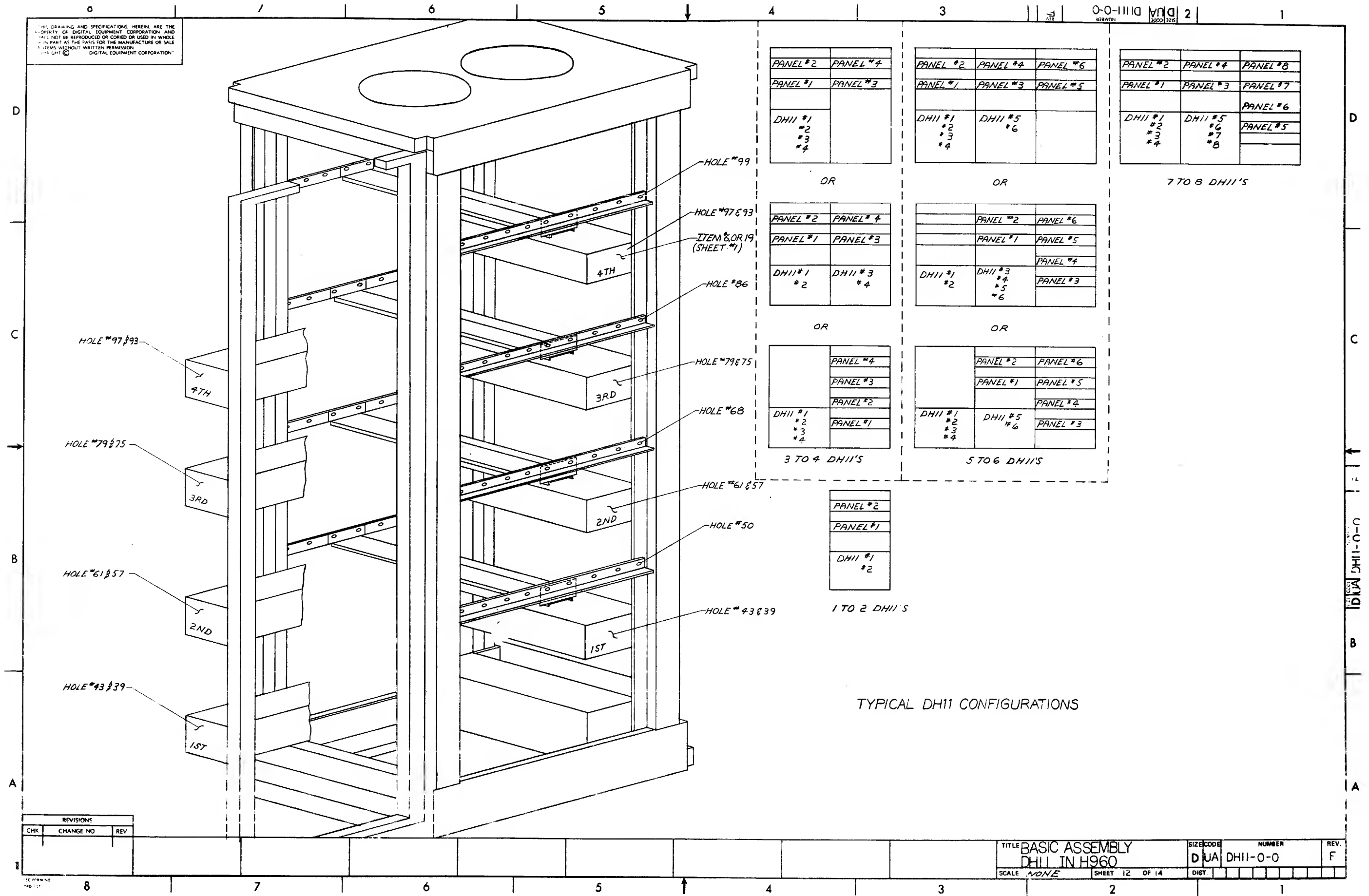
DETAIL'S



FIRST USED IN QTY./MODEL			QTY.		DESCRIPTION		PART NO.	
PDP11					PARTS LIST			
DIMENSIONAL TOLERANCE			DRN. R. VOWLES		DATE 2-22-73			
DIMENSIONS ARE <u>MILLIMETER</u> UNLESS OTHERWISE SPECIFIED			CHK'D. K. GLEEZEN		DATE 2-22-73			
			ENG. J. MCNAMARA		DATE 2-22-73			
			PROJ. ENG. J. MCNAMARA		DATE 2-22-73			
			PROD. J. BORENSTEIN		DATE 2-23-73		TITLE BASIC ASSEMBLY DH11 IN H96Ø	
THIRD ANGLE PROJECTION			REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓		NEXT HIGHER ASSY.			
			MATERIAL //		B-DD-DH11-Ø		SIZE CODE DUA DH11-Ø-Ø	
FINISH //			SCALE NONE		SHEET 11 OF 14		NUMBER RE	

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 DIGITAL EQUIPMENT CORPORATION

0-0-11110 VMD 2
 3000 3215



PANEL #2	PANEL #4
PANEL #1	PANEL #3
DH11 #1 #2 #3 #4	

OR

PANEL #2	PANEL #4
PANEL #1	PANEL #3
DH11 #1 #2	DH11 #3 #4

OR

	PANEL #4
	PANEL #3
	PANEL #2
	PANEL #1
DH11 #1 #2 #3 #4	

3 TO 4 DH11'S

PANEL #2
PANEL #1
DH11 #1 #2

1 TO 2 DH11'S

PANEL #2	PANEL #4	PANEL #6
PANEL #1	PANEL #3	PANEL #5
DH11 #1 #2 #3 #4	DH11 #5 #6	

OR

	PANEL #2	PANEL #6
	PANEL #1	PANEL #5
		PANEL #4
DH11 #1 #2	DH11 #3 #4 #5 #6	PANEL #3

OR

	PANEL #2	PANEL #6
	PANEL #1	PANEL #5
		PANEL #4
DH11 #1 #2 #3 #4	DH11 #5 #6	PANEL #3

5 TO 6 DH11'S

PANEL #2	PANEL #4	PANEL #8
PANEL #1	PANEL #3	PANEL #7
DH11 #1 #2 #3 #4	DH11 #5 #6 #7 #8	PANEL #6 PANEL #5

7 TO 8 DH11'S

TYPICAL DH11 CONFIGURATIONS

REVISIONS		
CHK	CHANGE NO	REV

TITLE BASIC ASSEMBLY DH11 IN H960		SIZE CODE DUA	NUMBER DH11-0-0	REV. F
SCALE NONE	SHEET 12 OF 14	DIST.		

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A

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
M971	M971	M971	M594	M594																	M594	M594		
*CABLE DATA SET CNTRL LINES ΦΦ THRU Φ3	*CABLE DATA SET CNTRL LINES ΦΦ THRU Φ7	*CABLE DATA SET CNTRL LINES ΦΦ THRU Φ11	** LINE 8 THRU 11 "X" SLOT	** LINE 12 THRU 15 "X" SLOT	LINE 0 "A" SLOT	LINE 1 "A" SLOT	LINE 2 "A" SLOT	LINE 3 "A" SLOT	LINE 4 "A" SLOT	LINE 5 "A" SLOT	LINE 6 "A" SLOT	LINE 7 "A" SLOT	LINE 8 "A" SLOT	LINE 9 "A" SLOT	LINE 10 "A" SLOT	LINE 11 "A" SLOT	LINE 12 "A" SLOT	LINE 13 "A" SLOT	LINE 14 "A" SLOT	LINE 15 "A" SLOT		*** LINE 8 THRU 11 "Y" SLOT	*** LINE 12 THRU 15 "Y" SLOT	

B

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
M971	M971	M971	M594	M594																	M594	M594		
• • CABLE DATA SET LINES ΦΦ THRU 15	*CABLE DATA SET LINES ΦΦ THRU 15	Δ Δ LOOP BACK TEST LINES Φ THRU 15	** LINE Φ THRU 3 "X" SLOT	** LINE 4 THRU 7 "X" SLOT	LINE 0 "B" SLOT	LINE 1 "B" SLOT	LINE 2 "B" SLOT	LINE 3 "B" SLOT	LINE 4 "B" SLOT	LINE 5 "B" SLOT	LINE 6 "B" SLOT	LINE 7 "B" SLOT	LINE 8 "B" SLOT	LINE 9 "B" SLOT	LINE 10 "B" SLOT	LINE 11 "B" SLOT	LINE 12 "B" SLOT	LINE 13 "B" SLOT	LINE 14 "B" SLOT	LINE 15 "B" SLOT		*** LINE Φ THRU 3 "Y" SLOT	*** LINE 4 THRU 7 "Y" SLOT	

WIRING SIDE VIEW OF DISTRIBUTION PANEL (MODULE UTILIZATION)

- USED WHEN DM11-BB IS IMPLEMENTED
- • DATA CABLE FROM DM11-A LOGIC
- • LOOP BACK TEST CARD FOR DIAGNOSTICS
REMOVE FOR NORMAL OPERATION
- ** EIA LEVEL CONVERSION FOR DATA LEADS ONLY (SEE CHART)
- *** ACTIVE 20mA LEVEL CONVERSION (SEE CHART)

USAGE OF LINE		11 OPTION		"A" SLOT	"B" SLOT	"X" SLOT	"Y" SLOT
Φ	LOOP BACK TEST	—	—	EMPTY	DONT CARE	EMPTY	EMPTY
1	20mA ACTIVE LOCAL	—	DM11-DA	EMPTY	M973	EMPTY	M594 M596
2	EIA LOCAL (DATA ONLY)	—	DM11-DB	M404	BC01R	M594	EMPTY
3	EIA FULL CONTROL	—	DF11-A, DM11-DC	M594	BC01R	EMPTY	EMPTY
4	IN GRAL MODEM (ANS ONLY)	—	DF11-BB	M587	M587	EMPTY	EMPTY
5	FLOATING 20mA LOCAL	—	DF11-K	M598	M973	EMPTY	EMPTY
6	GENERAL (ASYNC) DF11 SLOT	—	NONE	DF11 LEVEL CONVERTER	DF11 CABLE	EMPTY	EMPTY

NOTES:

M974 IN B03. ALL LINES(Φ THRU 15) AFFECTED.

ALL 4 SLOTS IN EACH GROUP(Φ-3, 4-7, 8-11, 12-15) MUST BE IN THIS MODE, IF ANY ARE.

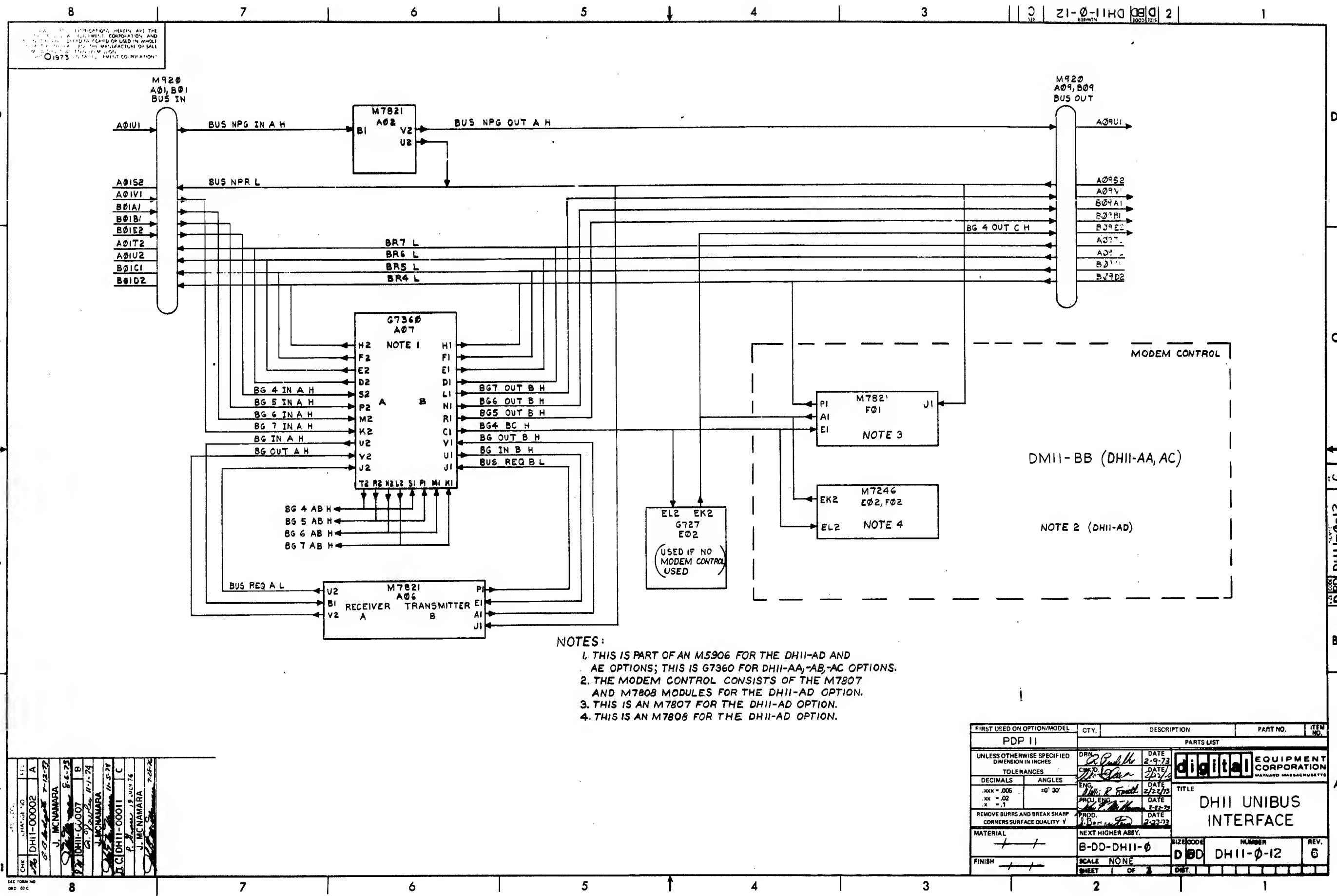
ALL 4 SLOTS IN EACH GROUP(Φ-3, 4-7, 8-11, 12-15) MUST BE IN THIS MODE, IF ANY ARE.

DM11-DC = 4-M594, 4-BC01R. DF11-A = 1-M594, 1-BC01R

M587 IS DOUBLE HEIGHT CARD.

REVISIONS		
CHK	CHANGE NO.	REV.

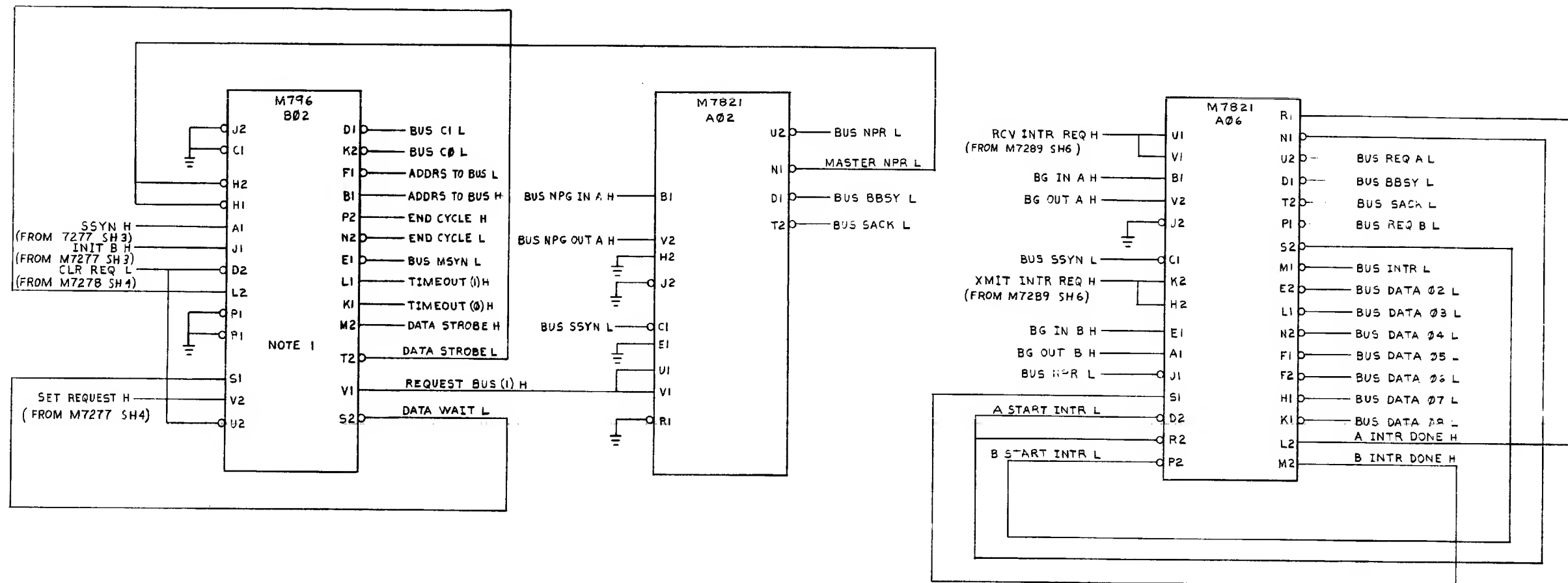
TITLE		SIZE CODE	NUMBER	REV.
BASIC ASSEMBLY DH11 IN H960		DUA	DH11-0-0	F
SCALE		SHEET 13 OF 14	DIST.	



CHK	DATE	BY	REV
1	12-12-73	J. MCNAMARA	A
2	12-12-73	J. MCNAMARA	B
3	12-12-73	J. MCNAMARA	C
4	12-12-73	J. MCNAMARA	D
5	12-12-73	J. MCNAMARA	E
6	12-12-73	J. MCNAMARA	F
7	12-12-73	J. MCNAMARA	G
8	12-12-73	J. MCNAMARA	H
9	12-12-73	J. MCNAMARA	I
10	12-12-73	J. MCNAMARA	J

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP II				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES	DRN	DATE	PARTS LIST	
TOLERANCES	CHK'D	DATE	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
DECIMALS	ENG	DATE	TITLE	
ANGLES	PROD. ENG.	DATE	DHII UNIBUS INTERFACE	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PROD.	DATE	SIZE CODE	
MATERIAL			NUMBER	
FINISH			REV.	
			DSD DHII-0-12 6	
			SHEET OF 3	

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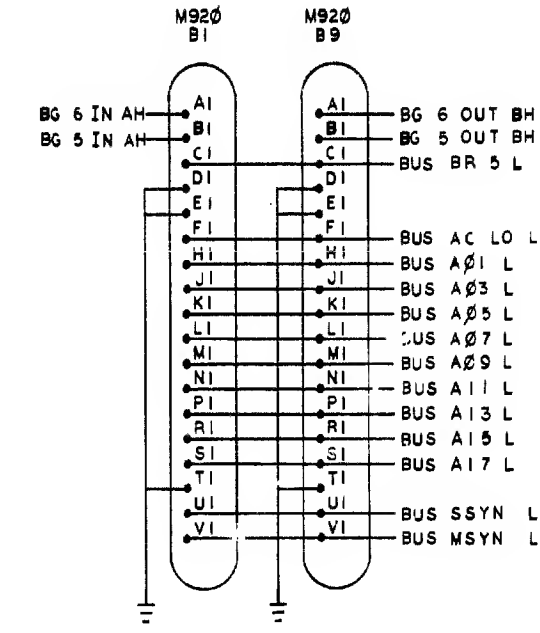
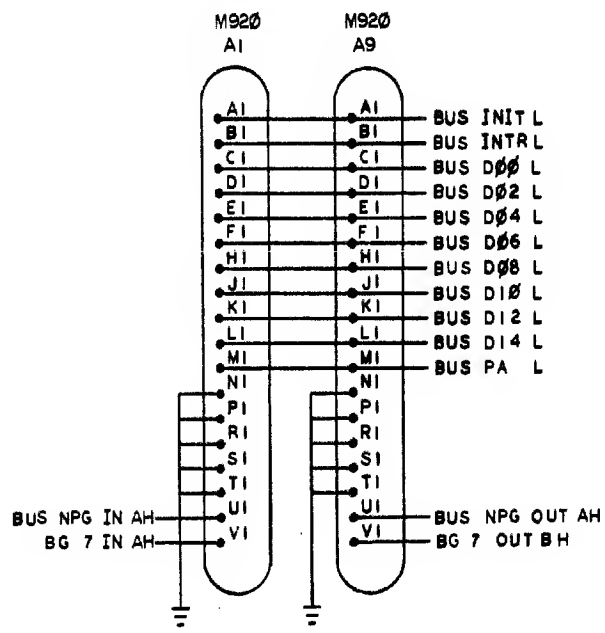


NOTES:
1. A 100PF CAPACITOR IS TO BE INSTALLED ACROSS SPLIT LUG TERMINALS ASSOCIATED WITH E8 ON THE M796. THIS LENGTHENS DATA STROBE TO APPROX 400 NS.

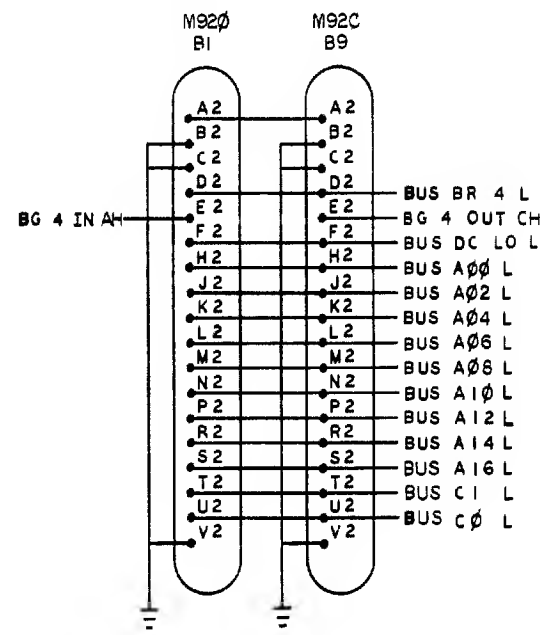
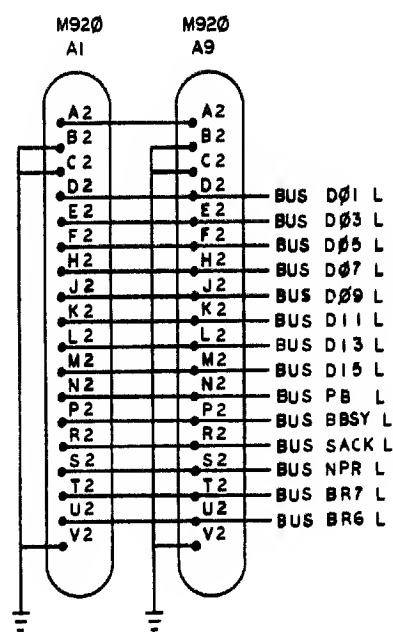
REVISIONS		
CHK	CHANGE NO	REV


TITLE		SIZE CODE	NUMBER	REV.
DH11 UNIBUS INTERFACE		D BD	DH11-0-12	C
SCALE	NONE	SHEET	2 OF 3	DIST.

THE MANUFACTURER AND SUPPLIER OF THE
EQUIPMENT SHALL BE RESPONSIBLE FOR THE
DESIGN, CONSTRUCTION, AND
MAINTENANCE OF THE EQUIPMENT AND
FOR THE PROTECTION OF THE MANUFACTURER'S
AND SUPPLIER'S PATENT RIGHTS.



- NOTES:
1. THE UNIBUS CONNECTOR IS A DOUBLE HEIGHT MODULE.
 2. IF DH11 IS LAST DEVICE ON THE BUS, TERMINATOR (M930) MODULE PLUGS IN SLOTS A9-B9.



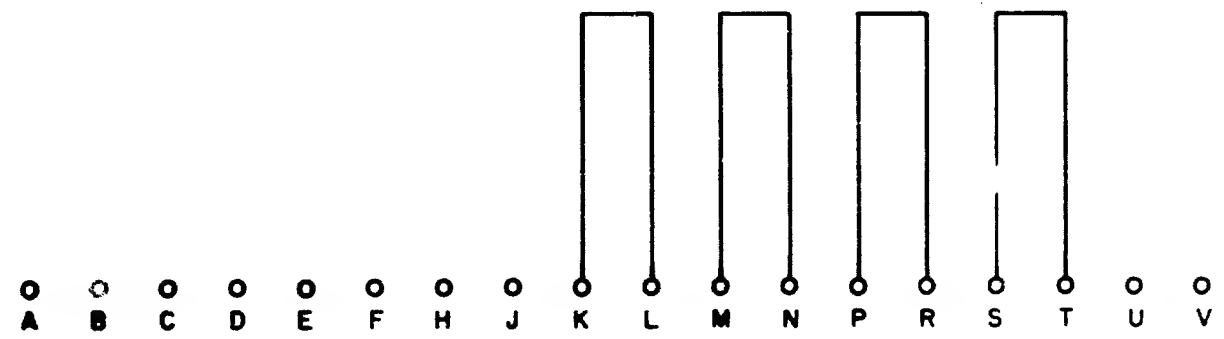
FIRST USE OR OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
DH11		PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES		DRN. R. PUDELKO	DATE 2-9-73	 EQUIPMENT CORPORATION <small>MAYNARD, MASSACHUSETTS</small>	
TOLERANCES		CHK'D. K GLEEFZEN	OATE 2-22-73		
DECIMALS	ANGLES	ENG. W. SMITH	DATE 2-22-73	TITLE DH11 UNIBUS INTERFACE	
.xxx = .006 .xx = .02 .x = .1	10' 30'	PROJ. ENG. J. MCNAMARA	DATE 2-22-73		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY .V		PROD. J. BORNENSTEIN	OATE 2-23-73	SIZE CODE D BD	
MATERIAL		NEXT HIGHER ASSY.			
/ /		B-DD-DH11-0		NUMBER DH11-0-12	REV. C
FINISH		SCALE NONE			
/ /		SHEET 3 OF 3		DIST.	

REV.	CHANGE NO.
1	

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FOR TEST AND MAINTENANCE PURPOSES THE
NATURE AND SHOULD BE TREATED ACCORDINGLY
CORPORATION



REVISIONS	CHG	NO	REV		DRN	DATE	TRANSISTOR & DIODE CONVERSION CHART				digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	TITLE GRANT CONTINUITY G727			
	CHG	NO	REV		CHK'D	DATE	DEC	EIA	DEC	EIA		SIZE	CODE	NUMBER	REV
	CHG	NO	REV		CHK'D	DATE						B	CS	G727-0-1	
	CHG	NO	REV		CHK'D	DATE									
				PROD.	DATE						PRINTED CIRCUIT REV				



[illegible]

Sheet 1 of 28

ENGINEERING SPECIFICATION		CONTINUATION SHEET	
<div style="display: flex; justify-content: space-between;"> TITLE DH11 Module Test Procedure </div>			
<p>I. Equipment Required</p> <ul style="list-style-type: none"> A. A known good DH11 B. An oscilloscope - Techtronix 454 or better C. Diagnostics DZDHA-A-D through DZDHI-A-D D. PDP-11 E. Diagnostic DZDHK, H861 test connector, and 4 BC08R-12 cables. <p>Note: Users of this procedure in the field should run all of the diagnostics, starting with DZDHA. If that fails, refer to the section of this procedure entitled "LZDHA Failures". After making any repairs necessary to get DZDHA to run, run diagnostic DZDHB. If it fails, refer to "DZDHB Failures" etc.</p> <p>II. Procedure</p> <ul style="list-style-type: none"> A. Find the module to be tested in the list given in Section III below. Run the diagnostics as indicated, following the directions in the diagnostics for diagnostic start-up and switch settings. See "Note" on next page before starting. <p>III. Modules of the DH11 and Their Functions</p> <ul style="list-style-type: none"> A. M7277 Address Selection, Initialize, Control Strobe Generation, Instruction Generation, Data Source Selection, Current Address. Run DZDHA[*], B, C, D, E, G[*], H, I without iterations B. M7278 Byte Count Storage, Clear Buffer Active Register Logic, Transmitter Strobe, Buffer Active Register, Line Parameter Register, Break Control, Silo Status Register, All Gating to the Unibus, Silo Maintenance System. Run DZDHA[*], B, C[*], D, E, G[*], H, I without iterations C. M7279 First-In First-Out Buffer Memory (Silo), Silo Maintenance, Silo Fill Level, Receiver Interrupt. Run DZDHA, C[*], E, G[*], H, I WITH iterations D. M7280 Multiple UARTS Run DZDHA, B, C, D, E, G[*], H, I WITH iterations E. M7288 Speed Selection, Half-Duplex, Auto-Echo Run DZDHA, C, D[*], E, G[*], H[*], I without iterations 			
	SIZE	CODE	NUMBER
	A	SP	DH11-0-11
			REV
			A

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ENGINEERING SPECIFICATION		CONTINUATION SHEET	
TITLE	DH11 Module Test Procedure		
<p>F. M7289 Auto-Echo System, Receiver Scanner, System Control Register, Half-Duplex</p> <p style="padding-left: 40px;">Run DZDHA*, B, C, D, E, G, H, I without iterations</p> <p>G. M5906 EIA to TTL and TTL to EIA conversion for the 16 input and output data lines. The priority jumper plugs are also on this module.</p> <p style="padding-left: 40px;">This module is hand tested on the 9305931 (M5906 tester) and needs no further checking.</p> <p>H. M7807 & M7808</p> <p style="padding-left: 40px;">These two modules are the modem control for the DH11-AD option</p> <ol style="list-style-type: none"> 1. Connect four BC08R-12 cables to J1 & J2 on the M7807 and M7808 modules. Insert the other end of these cables into the H861 test connector. 2. Run DZDHK* with iterations. Run test group 0 and if any errors occur refer to the M7807 and M7808 circuit schematics. Also refer to the wire locator table at the end of this procedure. Run two passes without error. <p>Note: The pages which follow outline the action of the various diagnostics and suggest signals to look for in the case of errors. The following pages are exact copies of the DH11 Option Test Procedure, Parts 4 & 5 and are labelled as such.</p> <p>Note: Tests marked with an asterisk (*), if run successfully, are a sufficient test of the module under test. The other diagnostics listed are convenient debugging aids should the module fail one of the * tests.</p> <p>Note: Each diagnostic should run at least one pass with iterations without error.</p>			
		<div style="display: flex; justify-content: space-between;"> SIZE A CODE SP </div>	<div style="display: flex; justify-content: space-between;"> NUMBER DH11-0-11 REV A </div>

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DRA 108

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ENGINEERING SPECIFICATION		CONTINUATION SHEET																		
TITLE DH11 TEST PROCEDURE																				
<p>E. Summary of the Diagnostics</p> <p>1. DZDHA DH11 Static Logic Test Running time: 1 sec. without iterations 35 sec with iterations Switch settings:</p> <table border="0" style="width: 100%; margin-top: 10px;"> <thead> <tr> <th style="text-align: left; width: 20%;"><u>Switch</u></th> <th style="text-align: left;"><u>Action if set to one</u></th> </tr> </thead> <tbody> <tr><td>15</td><td>Halt on error</td></tr> <tr><td>14</td><td>Loop in the current test</td></tr> <tr><td>13</td><td>Inhibit error timeout</td></tr> <tr><td>11</td><td>Inhibit iterations</td></tr> <tr><td>10</td><td>Escape to next test on error</td></tr> <tr><td>09</td><td>Loop with current data</td></tr> <tr><td>02</td><td>Restart program at selected test</td></tr> <tr><td>01</td><td>Reselect vector and control register address after program restart</td></tr> </tbody> </table> <p>Tests 01 through 10 (octal) test each register of the DH11 for response.</p> <p>Tests 11 through 14 test to make sure that the SCR, LPR, BCR, and SSR register can be cleared.</p> <p>Tests 15 through 27 test the ability to set and clear bits 0, 1, 2, 3, 4, 5, 6, 9, 12, 13, and 15 (decimal) of the SCR.</p> <p>Tests 30 through 34 test the ability in <u>Maintenance Mode</u> to set and clear bits 7, 8, 10, 11, and 14 (decimal) of the SCR.</p> <p>Tests 35 through 37 test to make sure that bits 7, 10, 14 can only be cleared while in maintenance mode.</p> <p>Tests 40 through 56 test the ability to set and clear bits of the Line Parameter Register one at a time.</p> <p>Tests 57 through 76 test the ability to set and clear the bits of the Break Control Register one at a time.</p> <p>Tests 77 through 105 test the ability to set and clear bits 0, 1, 2, 3, 4, 5, 15, of the Silo Status Register one at a time.</p>			<u>Switch</u>	<u>Action if set to one</u>	15	Halt on error	14	Loop in the current test	13	Inhibit error timeout	11	Inhibit iterations	10	Escape to next test on error	09	Loop with current data	02	Restart program at selected test	01	Reselect vector and control register address after program restart
<u>Switch</u>	<u>Action if set to one</u>																			
15	Halt on error																			
14	Loop in the current test																			
13	Inhibit error timeout																			
11	Inhibit iterations																			
10	Escape to next test on error																			
09	Loop with current data																			
02	Restart program at selected test																			
01	Reselect vector and control register address after program restart																			
SIZE A	CODE SP	NUMBER DH11-0-11																		
		REV A																		

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ENGINEERING SPECIFICATION		CONTINUATION SHEET	
TITLE DH11 TEST PROCEDURE			
<p>Tests 106 through 124 set the Line Paramatar Ragistar to all ones and clear the bits one at a time.</p> <p>Tests 124 through 144 do the same for the Braak Control Register.</p> <p>Tests 144 through 153 do the same for the Silo Status Register bits 0, 1, 2, 3, 4, 5, 15.</p> <p>If a failure occurs, go to the section of this procedure marked "DZDHA Failures".</p> <p>2. DZDHE DH11 Memory Test Running time: 2 sec. without iterations, 25 sec. with itar. Switch Settings: Sama as DZDHA</p> <p>Test 1 is the bus address mamory addressing test. It loads each location in the bus address mamory with the address of that location. The address is repeated avary four bits. The test varifies that each location in the bus address memory was addressed.</p> <p>Test 2 does the same thing to the byta mamorias as test 1 did to the currant address mamories.</p> <p>Tests 3 through 22 sat a 177777 address in bus address memory location 0, varify it, clear it, varify that it is clear, than repeat for location 1, etc.</p> <p>Tests 23 through 42 do the same for the byte count mamory locations.</p> <p>Test 43 is similar to tests 3 through 22 axcept that in addition to varifying that the salacted location was sat to 177777, a chack is made to make sure that no data has appeared in any of the other bus address memory locations (they should all be clear axcept the one sat to 177777).</p> <p>Test 44 is the same as test 43 but uses 125252 as the tast word.</p> <p>Test 45 is the same as test 44 but uses 52525 as the tast word</p> <p>Tests 46, 47, 50 ara the sama as tasts 43, 44, 45 but ara applied to the byte count mamorias.</p>			
SIZE	CODE	NUMBER	REV
A	SP	DH11-0-11	A
DEC FORM NO DEC 16-13811-1022-N370 DRA 108			
SHEET 5 OF 28			

ENGINEERING SPECIFICATION		CONTINUATION SHEET	
TITLE DH11 TEST PROCEDURE			
<p>Tests 51 and 52 sat all locations for the bus address memories (51) or byta count mamorias (52) to 177777 and then sat selacted location to 0. No other location should change.</p> <p>Tests 53, 54, and 55 test the ability to sat and clear the mamory extension bits.</p> <p>In case of failure, consult the section of this procadura antitlad "DZDHB Failuras".</p> <p>3. DZDHC DH11 Transmitter and Receivar Basic Logic Tast Running time: 23 sec. without iterations, 32 sec. with itar. Switch settings: Sama as DZDHA</p> <p>Test 1 Sat character available intarrupt anabla and verify that no intarrupts occur.</p> <p>Test 2 Sama as test 1, but silo ovarflow interrupt anabla.</p> <p>Test 3 Same as test 2, but transmittar dona interrupt enable.</p> <p>Test 4 Sat character available intarrupt anabla and then (in maintenanca moda) sat character available and then verify that an intarrupt occurs.</p> <p>Test 5 Sama as 4, but silo overflow</p> <p>Test 6 Same as 4, but transmitter interrupt anabla/non-existent memory.</p> <p>Test 7 Sama as 4, but transmitter interrupt anabla/transmittar dona.</p> <p>Tests 10 through 27 sat byta count for lina 0, sat BAR bit for lina 0, verify BAR bit for lina 0 clears, verify transmittar done set. This is done for lina 0, than 1, than 2, etc.</p> <p>Tests 30 through 47 sat byta count for all linae to 1, then sat BAR bit for lina 0, varify that byta count for lina 0 goes to 0, that bus address for lina 1 is incremented, and that all other byte counts and bus addresses are unchanged. This is dona for lina 0, then lina 1, line 2, etc.</p> <p>Test 50 tests the silo maintenanca mode by forcing a 10101010101010 into the silo and varifies that the character available bit is sat, that a character available interrupt occurs, that NRC bit 15 is set and that the 10101010101010 pattern appears correctly in the Next Received Character (NRC) registrar.</p> <p>Test 51 varifies that the silo up countag counts up correctly.</p>			
SIZE	CODE	NUMBER	REV
A	SP	DH11-0-11	A
DEC FORM NO DEC 16-13811-1022-N370 DRA 108			
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ENGINEERING SPECIFICATION		CONTINUATION SHEET	
TITLE DH11 TEST PROCEDURE			
<p>Test 52 varifies that the silo down counter counts down correctly.</p> <p>Test 53 tests the silo alarm level alarm for 0, 1, 2, 4, 8, 16, and 32 characters to sea that the alarm goes off (i.e., an interrupt occurs) at the proper fill laval.</p> <p>If a failure occurs, go to the section of this procedure marked "DZDHC Failures".</p> <p>4. DZDHD DH11 Speed Selection Logic Tast Running time: 15 sec. without iterations, 1 min.55 sec. with iteration Switch settings: Sama as DZDHA</p> <p>Test 1 tasts to sea that thara is a clock for speed 1. It then sands thraa characters at a salacted speed on line 0. It varifies that transmitter done occurs at that salacted speed and that the amount of time taken is less at this speed than at the previously salacted speed. This is done for 15 (octal), 13 (dacimal) speeds at increasing speeds.</p> <p>Tests 2 through 15 ara the sama as tast 1, but for lines 1, 2, 3, etc., up through lina 14 (octal)</p> <p>Tests 16 through 32 ara similar to tasts 1 through 15, but for one character, and receive done is checkad and timed rather than transmittar done.</p> <p>If a failure occurs, consult the section of this procadure entitlad "DZDHD Failures".</p> <p>5. DZDHE DH11 Character Length and Basic Data Test Running time: 1 sac without iterations, 20 sac. with iterations Switch settings: Same as DZDHA</p> <p>Tests 1 through 100 transmit an all ones character at 9600 baud, changing first the character length (5 bit, 6 bit, 7 bit, 8 bit) on line 0, than doing the same on lina 1, etc.</p> <p>If a failure occurs, consult "DZDHE Failures"</p> <p>6. DZDHF DH11 Single Line Data Test Running time: 50 min. 50 sec. without iter., 52 min.25 sec. with iterations Switch settings: Sama as DZDHA</p>			
SIZE	CODE	NUMBER	REV
A	SP	DH11-0-11	A
DEC FORM NO DEC 16-13811-1022-N370 DRA 108			
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ENGINEERING SPECIFICATION		CONTINUATION SHEET	
TITLE DH11 TEST PROCEDURE			
<p>Tests 1 through 20 transmit all 8 bit characters one at a time on line. 0, 1, 2, etc.</p> <p>Tests 21 through 40 transmit a block of 400 (octal) characters on line 0, character length is 8 bits. Lina speeds start at 50 baud and ara incremented to 9600 baud. A block of 400 characters is transmitted at each speed. This proccess is repeated for lines 0 through 17 (octal).</p> <p>Tests 41 through 60 transmit a block of 400 (octal) characters on line 0; speed is 9600 baud; character length is 5 bits for the first 400 characters and is then changed to 6 bits, 7 bits, and 8 bits for future blocks of 400 characters. This proccess is repeated for linae 0 through 17 (octal).</p> <p>If a failure occurs, consult "DZDHF Failures".</p> <p>7. DZDHG DH11 Multi-Lina Data Tast Running time: 4 sec. without iterations, 5 min.33 sac. with iterations Switch settings: Same as DZDHA</p> <p>Test 1 - In this tast the silo alarm laval is set to 0. The receiver is to ba sarvicad on a par character basis in interrupt moda. Transmitter interrupts are disabled. A binary count pattern of 400 (octal) characters is sant on all lines. Character length is 8 bits for all lines.</p> <p>Test 2 - Same as tast 1, but all lines are run at 9600 baud. Silo alarm level is set as high as possible. No raceivar interrupt sarvicig, but rather characters ara raad from the silo as quickly as possible, tasting the valid data bit of the Next Received Character registrar.</p> <p>If a failure occurs, consult "DZDHG Failures".</p> <p>8. DZDHH DH11 Auto-Echo Tast Running time: 10 sac. without iterations, 2 min. 40 sac. with iterations Switch settings: Sama as DZDHA</p> <p>Tests 1 through 20 anabla Auto-Echo on lina 0, transmit an 8 bit character on that lina at 9600 baud, receive and varify that character. This continues until 64 characters have bean received. Than disabla auto-acho. Exactly ona mora character should be received. This is dona for all 16 linae.</p>			
SIZE	CODE	NUMBER	REV
A	SP	DH11-0-11	A
DEC FORM NO DEC 16-13811-1022-N370 DRA 108			
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ENGINEERING SPECIFICATION		CONTINUATION SHEET									
TITLE DH11 TEST PROCEDURE											
<p>Tests 21 through 40 are similar to tests 1 through 20, but the data checked is a binary count pattern on all lines except that for which the auto-echo is being run. Lines are auto-echoed one line at a time while other transmissions take place.</p> <p>Test 41 transmits one character on each line with auto-echo enabled. 64 characters are received on each line.</p> <p>If a failure occurs, consult "DZDHH Failures".</p> <p>9. DZDHI DH11 Break and Half-Duplex Test Running time: 10 sec. without iter., 3 min. 25 sec. with iter. Switch Settings: Same as DZDHA</p> <p>Tests 1 through 20 test the break facility by first flushing the UART transmitter for a line by transmitting two nulls and setting the break bit for that line. A binary count pattern is transmitted. Only one character should be received and that should be a break character. This is done for each line sequentially.</p> <p>Tests 21 through 40 set half-duplex on a line. A binary count pattern is transmitted. No characters should be received. This is done for each line sequentially.</p> <p>If a failure occurs, consult "DZDHI Failures".</p> <p>10. DZDHJ-DH11 echo test</p> <p>This diagnostic contains a test which verifies that all characters (8-377 octal) will echo on each line (8-17 octal) with standard DH11 terminal attachments--TTY 33, 35 or VT05 etc.-- using ASCII asynchronous code (110 baud with two stop bits and 300, 600, or 1200 baud with one stop bit only).</p> <p>The starting address is 000200 octal.</p> <p>Operational switch settings are:</p> <table><tr><td>SW15=1</td><td>Halt on error</td></tr><tr><td>SW13=1</td><td>Suppress error timeout</td></tr><tr><td>SW02=1</td><td>Reselect line number and baud rate</td></tr><tr><td>SW00=1</td><td>Change parameters at program restart</td></tr></table> <p>11. DZDHK-DH11 modem control test</p> <p>This program is a test of the modem control multiplexer used with the DH11-AD option. The program is divided into functional test groups as follows:</p> <p>Group 0: All line scanner and line multiplexer functions are tested using the H861 test connector.</p>				SW15=1	Halt on error	SW13=1	Suppress error timeout	SW02=1	Reselect line number and baud rate	SW00=1	Change parameters at program restart
SW15=1	Halt on error										
SW13=1	Suppress error timeout										
SW02=1	Reselect line number and baud rate										
SW00=1	Change parameters at program restart										
SIZE	CODE	NUMBER	REV								
A	SP	DH11-0-11									

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ENGINEERING SPECIFICATION		CONTINUATION SHEET													
TITLE DH11 TEST PROCEDURE															
<p>Group 1: A single line is tested using the modem cable and a H315 test connector.</p> <p>Group 2: Connect-disconnect tests for 103A modems.</p> <p>Group 3: Connect-disconnect tests for 202C modems.</p> <p>The starting address is 000200 octal.</p> <p>Operational switch settings are:</p> <table><tr><td>SW15=1</td><td>Halt on error</td></tr><tr><td>SW14=1</td><td>Loop current test</td></tr><tr><td>SW13=1</td><td>Suppress error timeout</td></tr><tr><td>SW11=1</td><td>Suppress iterations</td></tr><tr><td>SW10=1</td><td>Escape to next test on error</td></tr><tr><td>SW09=1</td><td>Freeze data</td></tr></table>				SW15=1	Halt on error	SW14=1	Loop current test	SW13=1	Suppress error timeout	SW11=1	Suppress iterations	SW10=1	Escape to next test on error	SW09=1	Freeze data
SW15=1	Halt on error														
SW14=1	Loop current test														
SW13=1	Suppress error timeout														
SW11=1	Suppress iterations														
SW10=1	Escape to next test on error														
SW09=1	Freeze data														
SIZE	CODE	NUMBER	REV												
A	SP	DH11-0-11	A												

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DRA 106

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ENGINEERING SPECIFICATION		CONTINUATION SHEET																																			
TITLE DH11 Test Procedure																																					
<p>F. Failures</p> <p>1. DZDHA Failures</p> <p>a. If the following message is received-</p> <p>##1346 REGISTER DID NOT RESPOND</p> <p>ADDRESS</p> <p>76##2#</p> <p>this indicates that the PDP-11 processor did not receive a slave sync response from the DH11. The following checks should be made:</p> <p>1.)</p> <p>Was the address entered correctly when you responded to the questions asked in the opening dialogue of diagnostic DZDHA? The N7277 module (located in slot 04) is normally supplied with all nine address jumpers in place, making the DH11 address 160000. The following jumper out table may be of use in verifying that the address out into the N7277 matches the address you typed into the diagnostic.</p> <table><tr><td>Jumpers OUT</td><td>Address</td></tr><tr><td>None</td><td>160000</td></tr><tr><td>4</td><td>160020</td></tr><tr><td>5</td><td>160040</td></tr><tr><td>5-4</td><td>160060</td></tr><tr><td>6</td><td>160100</td></tr><tr><td>6-4</td><td>160120</td></tr><tr><td>6-5</td><td>160140</td></tr><tr><td>6-5-4</td><td>160160</td></tr><tr><td>7</td><td>160200</td></tr><tr><td>7-4</td><td>160220</td></tr><tr><td>7-5</td><td>160240</td></tr><tr><td>7-5-4</td><td>160260</td></tr><tr><td>7-6</td><td>160300</td></tr><tr><td>7-6-4</td><td>160320</td></tr><tr><td>7-6-5</td><td>160340</td></tr><tr><td>7-6-5-4</td><td>160360</td></tr></table> <p>Etc.</p> <p>The numbers identifying the jumpers are located on the N7277 slot right underneath the jumpers. In the set of five jumpers located near the center of the board, the order top to bottom is: 8-11-12-10-9. In the set of four jumpers located</p>				Jumpers OUT	Address	None	160000	4	160020	5	160040	5-4	160060	6	160100	6-4	160120	6-5	160140	6-5-4	160160	7	160200	7-4	160220	7-5	160240	7-5-4	160260	7-6	160300	7-6-4	160320	7-6-5	160340	7-6-5-4	160360
Jumpers OUT	Address																																				
None	160000																																				
4	160020																																				
5	160040																																				
5-4	160060																																				
6	160100																																				
6-4	160120																																				
6-5	160140																																				
6-5-4	160160																																				
7	160200																																				
7-4	160220																																				
7-5	160240																																				
7-5-4	160260																																				
7-6	160300																																				
7-6-4	160320																																				
7-6-5	160340																																				
7-6-5-4	160360																																				
SIZE	CODE	NUMBER	REV																																		
A	SP	DH11-0-11	A																																		

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ENGINEERING SPECIFICATION		CONTINUATION SHEET																													
TITLE DH11 Test Procedure																															
<p>near the edge of the board, the order top to bottom is: 7-4-5-6.</p> <p>2.)</p> <p>If the address that you entered in the opening dialogue of the diagnostic agrees with the jumpered-in address, reload the diagnostic making sure that there is no check sum error (i.e. that the Bus Data lights on the computer console are all out when the tape loading finishes.) Now try the diagnostic again.</p> <p>3.)</p> <p>If the problem still exists, look at N7277 E72 pin 4. You should see a positive pulse about one-half microsecond long and occurring every five microseconds or so, when you run the following toggled-in program (See Note A, Page 26)</p> <table><tr><td>5000/ 12706</td><td>Set up stack</td><td>5014/ 340</td><td>Set up</td></tr><tr><td>5002/ 1000</td><td></td><td>5016/ 6</td><td>for trap</td></tr><tr><td>5004/ 12737</td><td></td><td>5020/ 5737</td><td>Test</td></tr><tr><td>5006/ 5030</td><td>Set up for</td><td>5022/1600xx</td><td>DI register (Note 1)</td></tr><tr><td>5010/ 4</td><td>trap</td><td>5024/ 137</td><td>Jump</td></tr><tr><td>5012/ 12737</td><td></td><td>5026/ 5020</td><td>to 5020</td></tr><tr><td></td><td></td><td>5030/ 2</td><td>RTI</td></tr></table> <p>4.)</p> <p>If the pulse mentioned above occurs, use it as a trigger source while you look with a second scope channel at E72 pins 1, 2, and 5. At each of these there should be a high during the time that pin 4 is high. If these conditions are met, a negative pulse that is the complement of the positive pulse on pin 4 should appear as the output (pin 6). A shorter negative pulse should appear at E29 pin 10 along with some other pulses. Please note that if you look at E29 pin 10 without using a trigger source such as E72 pin 4 you will get useless information, as you will be seeing all of the slave syncs on the bus. What you are looking for is the slave sync that corresponds to the positive pulse (but is shorter) on E72 pin 4.</p> <p>b. If the following message is received-</p> <p>##2312 MASTER CLEAR ERROR</p> <p>EXP REC ADDRESS</p> <p>##### 771377 76##2#</p> <p>this indicates that master clear was unable to clear the register named.</p> <p>Note 1: The number used in location 5022 of the toggle-in program should be the address cited in the error message (see I.F.1.a on preceding page.)</p>				5000/ 12706	Set up stack	5014/ 340	Set up	5002/ 1000		5016/ 6	for trap	5004/ 12737		5020/ 5737	Test	5006/ 5030	Set up for	5022/1600xx	DI register (Note 1)	5010/ 4	trap	5024/ 137	Jump	5012/ 12737		5026/ 5020	to 5020			5030/ 2	RTI
5000/ 12706	Set up stack	5014/ 340	Set up																												
5002/ 1000		5016/ 6	for trap																												
5004/ 12737		5020/ 5737	Test																												
5006/ 5030	Set up for	5022/1600xx	DI register (Note 1)																												
5010/ 4	trap	5024/ 137	Jump																												
5012/ 12737		5026/ 5020	to 5020																												
		5030/ 2	RTI																												
SIZE	CODE	NUMBER	REV																												
A	SP	DH11-0-11	A																												

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<p>1.)</p> <p>The failure of master clear to clear a register is the result of one of several things. It could be that master clear is not being generated. It could be that the register is not being cleared despite the receipt of an initialize signal. It could be that the register is actually being cleared, but that the output of the register is not being properly presented back to the Unibus. The following procedures attempt to ascertain which of these effects is occurring.</p> <p>Begin by toggling in the following program which will generate a programmed Unibus Initialize:</p> <table><tr><td>5000/</td><td>5 Reset</td></tr><tr><td>5002/</td><td>137 Jump</td></tr><tr><td>5004/</td><td>5000 to 5000</td></tr></table> <p>2.)</p> <p>Look at M7277 pins EF2 and FV 2 for Initialize High, a pulse about 20 milliseconds long and occurring every 60 milliseconds or so. Also look at pins FR2 and FM2 for an Initialize Low pulse. If none of these pulses can be found, look at pin A41 to see if Initialize is being generated on the Unibus. If all of these points show the proper signals, generate DH11 Initialize by toggling in the following program:</p> <table><tr><td>5000/</td><td>5 Reset</td><td>5006/</td><td>160020 the SCR</td></tr><tr><td>5002/</td><td>52737 BIS</td><td>5010/</td><td>137 Jump</td></tr><tr><td>5004/</td><td>4000 bit 11 in</td><td>5012/</td><td>5002 to 5002</td></tr></table> <p>3.)</p> <p>Look at the pins mentioned above for the signals mentioned above (but slightly longer - about 2.4 microseconds). If these pulses are not seen at any of the above points, check pin FC1 for negative pulses of 2.4 microsecond duration. Check EL2 for positive pulses.</p> <p>4.)</p> <p>If M7277 pins EF2, FV2, FR2, and FM2 do show the proper signals, check the following logic:</p> <p>If it is the SCR that is not being cleared, check M7289 E7, E11, E19, E41, E47, and E50.</p>								5000/	5 Reset	5002/	137 Jump	5004/	5000 to 5000	5000/	5 Reset	5006/	160020 the SCR	5002/	52737 BIS	5010/	137 Jump	5004/	4000 bit 11 in	5012/	5002 to 5002
5000/	5 Reset																								
5002/	137 Jump																								
5004/	5000 to 5000																								
5000/	5 Reset	5006/	160020 the SCR																						
5002/	52737 BIS	5010/	137 Jump																						
5004/	4000 bit 11 in	5012/	5002 to 5002																						
SIZE	CODE	NUMBER	REV																						
A	SP	DH11-0-11	A																						
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<p>If it is the Line Parameter Register (LPR) that is not being cleared, check the M7278 E37, E52, E59, and E61.</p> <p>If it is the Break Control Register (BCR) that is not being cleared, check the M7278 E38, E51, E60, E67.</p> <p>If it is the Silo Status Register (SSR) that is not being cleared, check the M7278 E53, E68, and E69.</p> <p>5.)</p> <p>For the IC's cited above, make sure that the initialize signal arrives (run the toggle program from section "2.") above) and produces the proper clearing action.</p> <p>6.)</p> <p>Run the diagnostic looping on the current test when you get to the error-producing test. Re-do step 5.) above. If the bits cited by the diagnostic as being not cleared are in fact being cleared at the IC's mentioned above, the problem must be in the 74151 multiplexors in the M7278, the 8881's associated with those multiplexors, or in the Data Source Selection leads. On the M7278 print there is a signal called Data to Bus High (pin AB1). Use that as a trigger source while looking at the 8881 inputs for the bit that the diagnostic claims is not being cleared.</p> <p>o. The remainder of the DZDHA test sets and clears the bits of the aforementioned registers one at a time. The following error message is typical:</p> <p>002610 SYSTEM CONTROL REGISTER ERROR</p> <table><tr><td>EXP</td><td>REC</td><td>ADDRESS</td></tr><tr><td>0000001</td><td>0000000</td><td>760020</td></tr></table> <p>1.)</p> <p>In the case of such a message referring to the System Control Register (SCR), check the M7277 pins CP1 and CT2 for positive pulses while running the diagnostic on a loop of the failing test. These pins should have positive pulses somewhat shorter than one half microsecond. If these pulses are observed, check M7289 E7, E11, E19, E41, E47, E50 for proper clocking, proper input data, and proper operation. The input data comes from the "buffered data" buffers on the M7278.</p>								EXP	REC	ADDRESS	0000001	0000000	760020
EXP	REC	ADDRESS											
0000001	0000000	760020											
SIZE	CODE	NUMBER	REV										
A	SP	A-SP-DH11-0-11	A										
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<p>2.)</p> <p>In the case of the Line Parameter Register (LPR), check pin EF2 of the M7277 for positive pulses of less than one-half microsecond duration, while looping on the current failing test. Also check EH2 for a 300 nanosecond pulse. Also check ED1, EC1, EA1, etc. for the appropriate "Control Strobe" signal for the line in question. You may have to use the pulse at EH2 as a trigger source. If the appropriate pulses are found, check M7278 E37, E52, E59, and E61 for proper clocking, proper input data, and proper operation. To check input data, use control strobe as trigger.</p> <p>3.)</p> <p>In the case of the Break Control Register (BCR), check M7277 pin FV1 for positive pulses, and check M7278 E38, E51, E60, and E67 for proper clocking, input data, and operation.</p> <p>4.)</p> <p>In the case of the Silo Status Register, check M7277 pins CP2 and CR1 for positive pulses, and M7278 E53, E68, and E69 for proper clocking, input data, and operation.</p> <p>5.)</p> <p>If proper results are obtained in following the procedures outlined above, check the 74151 multiplexors and 8881's as described in section "b.6.)" above.</p> <p>*NOTES:</p> <p>ALL PROBLEMS ENCOUNTERED IN RUNNING DZDHA MUST BE SOLVED BEFORE RUNNING ANY OTHER DIAGNOSTICS.</p> <p>ETCH SHORTS, PADS THAT TOUCH, ETC. ARE FAR MORE COMMON THAN BAD IC's.</p> <p>TO CHECK INPUT DATA AT A FLIP-FLOP USE THE CLOCK LEAD TO THAT FLIP-FLOP AS A TRIGGER (ONCE YOU KNOW THAT THERE IS A SIGNAL ON THAT CLOCK LEAD). OTHERWISE YOU WILL SEE ALL OF THE BUFFERED DATA SIGNALS FROM THE UNIBUS.</p>							
SIZE	CODE	NUMBER	REV				
A	SP	DH11-0-11	A				
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<p>2. DZDHB Failures</p> <p>a. It is assumed that diagnostic DZDHA has been run successfully.</p> <p>b. If the following message is received-</p> <p>001376 BUS ADDRESS MEMORY ERROR</p> <table><tr><td>EXP</td><td>REC</td><td>ADDRESS</td></tr><tr><td>010421</td><td>010420</td><td>01</td></tr></table> <p>this indicates failure to properly read or write the current address memories. If the following message is received-</p> <p>001514 BYTE COUNT MEMORY ERROR</p> <table><tr><td>EXP</td><td>REC</td><td>ADDRESS</td></tr><tr><td>010421</td><td>010420</td><td>01</td></tr></table> <p>this indicates failure to properly read or write the byte count memories.</p> <p>c. It is often useful to arrange the FDP-11 console switches to escape to the next test on error by setting switch 10 to the 1 state. After accumulating several error messages and writing down the received and expected data in binary instead of octal, conclusions can be drawn.</p> <p>Examples:</p> <table><tr><th colspan="2">Diagnostic Output (Octal)</th><th colspan="2">Binary Representation</th></tr><tr><th>Expected</th><th>Received</th><th>Expected</th><th>Received</th></tr><tr><td>004376</td><td>004356</td><td>0000010011111110</td><td>0000010011101110</td></tr><tr><td>Expected</td><td>Received</td><td>Expected</td><td>Received</td></tr><tr><td>006233</td><td>006213</td><td>0000110010011011</td><td>0000110010001011</td></tr></table> <p>Notice that bit 04 is being dropped. If the problem is this simple or involves a few adjacent bits, go to paragraph "1" below.</p> <p>d. If the "received" data is consistently all zeroes, it would be wise to look at M7277 pin EN2 "Data to Bus High" while running the following program that reads the current address:</p> <table><tr><td>5000/</td><td>52737 BIS</td><td>5016/160026 of CA to R0</td></tr><tr><td>5002/</td><td>4000 Bit #11 in</td><td>5020/ 137 Jump</td></tr><tr><td>5004/160020 the SCR</td><td></td><td>5022/ 5000 to 5000</td></tr><tr><td>5006/ 13737 Mov contents</td><td></td><td></td></tr><tr><td>5010/177570 of SR to</td><td></td><td></td></tr><tr><td>5012/160026 the CA</td><td></td><td></td></tr><tr><td>5014/ 13700 Mov contents</td><td></td><td></td></tr></table>								EXP	REC	ADDRESS	010421	010420	01	EXP	REC	ADDRESS	010421	010420	01	Diagnostic Output (Octal)		Binary Representation		Expected	Received	Expected	Received	004376	004356	0000010011111110	0000010011101110	Expected	Received	Expected	Received	006233	006213	0000110010011011	0000110010001011	5000/	52737 BIS	5016/160026 of CA to R0	5002/	4000 Bit #11 in	5020/ 137 Jump	5004/160020 the SCR		5022/ 5000 to 5000	5006/ 13737 Mov contents			5010/177570 of SR to			5012/160026 the CA			5014/ 13700 Mov contents		
EXP	REC	ADDRESS																																																										
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006233	006213	0000110010011011	0000110010001011																																																									
5000/	52737 BIS	5016/160026 of CA to R0																																																										
5002/	4000 Bit #11 in	5020/ 137 Jump																																																										
5004/160020 the SCR		5022/ 5000 to 5000																																																										
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5010/177570 of SR to																																																												
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SIZE	CODE	NUMBER	REV																																																									
A	SP	DH11-0-11	A																																																									
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<p>If the aforementioned pin does have a signal (several hundred nanosecond positive pulse every few microseconds), run the diagnostic in a loop on the current (failing) test and look at E12. The signal should still be there, but not occurring so often. Using this signal as a trigger source, examine the 74151 multiplexors and the 8881 Unibus drivers; both of these on the M7278.</p> <p>If the "received" data is not all zeroes but appears to bear little if any relationship to the expected data, follow the procedures outlined in steps e-f-g-h below.</p> <p>e. For current address memory failures, run the toggled-in program from section d above. Look at the M7277 E48 pin 1. There should be positive pulses here, each several hundred nanoseconds long and occurring every few microseconds.</p> <p>f. For byte count memory failures, do the same as step e above, but use the following toggled-in program-</p> <table><tr><td>5000/ 52737</td><td>5010/177570</td><td>5020/ 137</td></tr><tr><td>5002/ 4000</td><td>5012/160030</td><td>5022/ 5000</td></tr><tr><td>5004/160020</td><td>5014/ 13700</td><td></td></tr><tr><td>5006/ 13737</td><td>5016/160030</td><td></td></tr></table> <p>and look for pulses again at M7277 E48 pin 1. This test and that above make sure that the current address and byte count memories are getting their selection information from the proper point. It is also important to loop the program on the failing test and make sure that the bits SCR 00, 01, 02, 03 progress properly from the System Control Register (M7289) to the inputs and outputs of M7277 E48.</p> <p>g. For current address errors, run the following program which loads one current address register:</p> <p>Use the toggle-in program from "d" above.</p> <p>Look at E57 pin 1 for positive pulses of several hundred nanosecond duration. If the pulses are there, use them as a trigger to look at E50 pin 1 for a 60 nanosecond pulse that begins 90 nanoseconds after the E57 pin 1 pulse begins. This 60 nanosecond pulse is the write enable pulse to the current address memories.</p> <p>h. For byte count errors, run the following toggle-in program which loads the byte count registers:</p> <p>Use the toggle-in program from "f" above.</p>				5000/ 52737	5010/177570	5020/ 137	5002/ 4000	5012/160030	5022/ 5000	5004/160020	5014/ 13700		5006/ 13737	5016/160030	
5000/ 52737	5010/177570	5020/ 137													
5002/ 4000	5012/160030	5022/ 5000													
5004/160020	5014/ 13700														
5006/ 13737	5016/160030														
SIZE	CODE	NUMBER	REV												
A	SP	DH11-0-11	A												
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<p>Look at M7278 pin GJ1 for positive pulses and at M7278 pin BT2 for 60 nanosecond pulses occurring 90 nanoseconds after the GJ1 pulses begin. These are the write enable pulses for the byte count memories.</p> <p>When performing either test g or h, it is important to look at M7277 pin FK1 where 30 nanosecond positive pulses should occur at the conclusion of current address memory write enable pulses and byte count memory write enable pulse. These 30 nanosecond pulses clear the "write current address" and "write byte count" flip-flops.</p> <p>1. If, as explained in c above, a particular bit is incorrect, examine the logic associated with that bit. If the faulty bit is in a current address, examine the M7277. If it is in a byte count, examine the M7278. Run either the toggle program from g for current addresses or the toggle program from h for byte counts and check to see that load pulses are reaching the 74193 being used by the bit in question. Also make sure that a write enable pulse is reaching the 7489 involved.</p> <p>Run the diagnostic, looping on the failing test, while examining the data paths for proper operation. Use the load pulse terminal (pin 11) of the 74193 as a trigger source while looking at data inputs to the 74157 (also be sure that 74157 pin 1 is high) and at the data inputs to the 74193.</p>			
SIZE	CODE	NUMBER	REV
A	SP	DH11-0-11	A
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<p>3. DEDNC Failures</p> <p>a. If any of the following messages occur-</p> <p>##1446 UNEXPECTED INTERRUPT CONTROL REGISTER CONTENTS ##23##</p> <p>a failure in the character available, silo overflow, and transmitter does interrupt circuitry is indicated. This logic is located on the M7289. Loop on the failing test and observe pin DD1, which should be high. E19 pin 6 should also be high. E50 pin 9 and pin 5 should be low.</p> <p>If DD1 was low, examine the logic of the M7279 Silo Buffer. Likewise, the M7279 should also be examined if the signal at E50 pin 10 was not a constant high. Signals on E50 pin 4 come from the M7278 E14, and should be constantly high at this point in the testing. On the M7278 make sure that pin FY2 does not pulse while looking on the failing test.</p> <p>b. If any of the following messages occur-</p> <p>##22#2 NO INTERRUPT</p> <p>a failure in the interrupt generation circuitry is indicated. Loop on the failing test. If it is test 4, look at E31 pin 8 on the M7289. If the failing test is test 5, look at M7289 E31 pin 3. If the failing test is test 6, look at M7289 E48 pin 8. If the failing test is test 7, look at M7289 E48 pin 3. In each of the above cases, negative pulses (signal normally high, occasionally going down to zero) should be observed. The signal must not be either always high nor always low, as transitions are necessary for successful operation of the M7821 Interrupt Control module. If the negative pulses are found, look at pins DP1 and FM1 for positive pulses. If those pulses are found, try a new M7821 after examining the inputs to the M7821 for proper inputs and PROPER VECTOR JUMPING. Remember that for the M7821 jumpers are left in to assert ones on the bus and removed to assert zeroes. For failures in the character available and silo overflow interrupts, be sure that there are positive transitions on M7821 pins G1 and G1. For transmitter done and non-exist memory interrupts, be sure that there are positive transitions on M7821 pins M2 and M2. The M7821 referred to is that located in slot A46.</p>			
SIZE	CODE	NUMBER	REV
A	SP	DH11-0-11	A
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<p>c. If a failure message such as that below occurs-</p> <p>##315# NO INTERRUPT ##316# TRANSMITTER DONE NOT SET</p> <p>determine the line number and then verify that the BAR (Buffer Active Register) bit for that line actually gets set. This may be done by looping on the failing test and examining the BAR register on the M7278. Check for the generation of the transmitter finished pulse by running the following toggled-in program which sets the byte count for line zero to all ones and then to all zeroes.</p> <table><tr><td>5000/ 52737</td><td>BIS</td><td>5020/ 160030</td><td>to BC</td></tr><tr><td>5002/ 4000</td><td>bit #11</td><td>5022/ 137</td><td>Jump</td></tr><tr><td>5004/ 160020</td><td>in SCR</td><td>5024/ 5000</td><td>to 5000</td></tr><tr><td>5006/ 12737</td><td>Move</td><td></td><td></td></tr><tr><td>5010/ 777777</td><td>all ones</td><td></td><td></td></tr><tr><td>5012/ 160030</td><td>to BC</td><td></td><td></td></tr><tr><td>5014/ 12737</td><td>Move</td><td></td><td></td></tr><tr><td>5016/ 000000</td><td>all zeroes</td><td></td><td></td></tr></table> <p>See Note B, Page 26</p> <p>Note that a permanent low on M7278 pin AS2 would cause the E14 one-shot to not fire. Pin AS2 should be always high. Look for transmitter finished pulses on pin AR1. Also look at the "Clear BAR Bit" signal appropriate to the line that the diagnostic reports is erring. Verify that the signal from pin AR1 causes pin FR 2 of the M7289 to go high and/or stay high.</p> <p>d. If the following failure message occurs-</p> <p>##12# BYTE COUNT ERROR EXP REC 777777</p> <p>loop on the current test and examine the BAR bit (M7278) appropriate to the line for which the error is reported. This BAR bit should change back and forth between 1 and 0 during the test looping.</p> <p>e. In the case of the following message-</p> <p>##1333# SILO DATA ERROR EXP REC 725252</p>				5000/ 52737	BIS	5020/ 160030	to BC	5002/ 4000	bit #11	5022/ 137	Jump	5004/ 160020	in SCR	5024/ 5000	to 5000	5006/ 12737	Move			5010/ 777777	all ones			5012/ 160030	to BC			5014/ 12737	Move			5016/ 000000	all zeroes		
5000/ 52737	BIS	5020/ 160030	to BC																																
5002/ 4000	bit #11	5022/ 137	Jump																																
5004/ 160020	in SCR	5024/ 5000	to 5000																																
5006/ 12737	Move																																		
5010/ 777777	all ones																																		
5012/ 160030	to BC																																		
5014/ 12737	Move																																		
5016/ 000000	all zeroes																																		
SIZE	CODE	NUMBER	REV																																
A	SP	DH11-0-11	A																																
DEC FORM NO DEC 16-(2011)-1022-N1370 DRA 108																																			
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<p>the silo test pattern was not properly received. Loop on the failing test and look at M7278 pin CN2 which should have positive pulses. Observe pin FV2 for one microsecond negative pulses that occur as the result of the CN2 pulses. Look at M7279 pin AR1 for the same pulses that you observed on M7278 pin CN2. Using those pulses as a trigger, look at pins 4 and 9 of the following ICs on the M7279: E2, E7, E12, and E16. These points should be low for at least the duration of the pulses on AR1. Look at pins 7 and 12 of these same ICs for highs occurring for at least as long as the AR1 pulses. These checks confirm that the proper test pattern is being prepared for entry into the silo, that the silo maintenance bit is being set, and that the silo maintenance pulse is being generated.</p> <p>f. The silo maintenance pulse is used in the DH11 receiver logic to simulate the finding of a data available flag, thus causing the silo logic to be cycled.</p> <p>Observe pin FF1 on the M7289 for the same one microsecond negative pulse that you previously observed on pin FV2 of the M7278. Using these pulses as a trigger source, observe pin AJ2 (Load Silo L) where negative pulses should occur about 2 microseconds after the FF1 pulse. There will be a varying time between the FF1 pulse and the AJ2 pulse because the receiver scanner/receiver logic has to wait for a tick of the 2.54 Mc clock before commencing operation (make sure that there is such a clock signal arriving at the M7289) and this clock is in no way related to the instruction that set the silo maintenance bit and thus generated the silo maintenance pulse that appears on FF1.</p> <p>Notice that the function of the FF1 pulse is to set Scanner Stop and thus causes the receiver sequencer (M7289 E21) to generate Load Silo L.</p> <p>g. Confirm the existence of Load Silo L pulses at pin BJ2 of the M7279.</p> <p>h. Be sure that there is a 5.068 Mc (period=200 nanoseconds) clock signal at pin BW1 of the M7279.</p> <p>i. Be sure that there is -15 VDC at pin AB2 of the M7279.</p> <p>j. Check pin BV2 of the M7279 to make sure that the Load Request flip-flop is being set and cleared. It gets set by the Load Silo L pulse (see G above).</p>			
SIZE	CODE	NUMBER	REV
A	SP	DH11-0-11	A

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<p>k. Check BK2 for 30 nanosecond negative pulses occurring about 170 to 370 ns after load request sets. (You may wish to use the 5.068 signal as a trigger and turn up the intensity). Since these pulses clear Load Request, the negative transition of BV2 might also be a good trigger source.</p> <p>l. Look at pin BW1 for positive pulses about a half microsecond wide. These are the program reading the NRC register and hence (hopefully) cycling a character out of the silo.</p> <p>m. Observe pin AL1 for negative pulses, occurring throughout the looping on the failing test. If these pulses only occur when you first start the program, the silo is probably being filled up, perhaps indicating failure in the "Unload" circuitry.</p> <p>n. Observe BL1 for positive pulses. These rely upon E9 pin 8 being low at times.</p> <p>o. Observe BV1 for negative pulses. Trace the effects of these pulses through the M7289 logic.</p>			
SIZE	CODE	NUMBER	REV
A	SP	DH11-0-11	A

DEC FORM NO DEC 16-1001-1002-11370
DRA 100

SHEET 22 OF 28

ENGINEERING SPECIFICATION		CONTINUATION SHEET	
TITLE DH11 Test Procedure			
<p>4. DZDHD Failures</p> <p>a. Be sure that the lead entitled "Z# Baud" is ground and hence that the "TOP BUFF Z# BAUD H" and "BOT BUFF Z# BAUD H" signals are permanently high. Refer to the M7288 Circuit Schematic.</p> <p>b. Check all "TOP BUFF" and "BOT BUFF" signals at M7288 E66, E67, E69, E70, E73, E74, E75. Use the table on the first page of the M4540 Circuit Schematic to determine the proper periods for the various baud rates. Using an oscilloscope you will only be able to make an approximate measurement, but you will be able to determine which clock signal is which and that no two are crossed or interchanged.</p> <p>c. Make sure that the aforementioned signals make it through to E4 and E2 at the appropriate pins.</p> <p>d. Looping on the failing tests, make sure that the proper "BUFF LPR" signals exist at the inputs, that the Control Strobe signal occurs (300ns), that there is no noise on the control strobe signal, and that the outputs of the 74174 and 74175 of the failing line are being properly set.</p> <p>e. Beware of the fact that the diagnostic detects problems by comparing the time it takes to transmit at one speed with the time it took at a previous speed. When an error is reported, it may be the speed tested prior to the present speed that was in fact in error.</p> <p>Example: Assume the speeds should be 110, 134.5, 150 and that they are actually 110, 300, 150. The diagnostic will determine that things happened faster at speed 2 than at speed 1 (300 compared to 110), but when it gets to speed 3 (150) it will report an error. The actual problem is speed 2 where one finds 300 instead of 134.5.</p> <p>5. DZDHE Failures</p> <p>a. While looping on the failing test, look at CD2 of both UART cards for a 300 ns Control Strobe signal. Check the CN2, CJ1, CF2, CJ2, CF2 pins for proper parameter data.</p> <p>b. Refer to DZDHC Failures for further tests.</p>			
SIZE	CODE	NUMBER	REV
A	SP	DH11-0-11	A

DEC FORM NO DEC 16-1001-1002-11370
DRA 100

SHEET 23 OF 28

ENGINEERING SPECIFICATION		CONTINUATION SHEET	
TITLE DH11 Test Procedure			
<p>6. DZDHF Failures</p> <p>a. In most cases it should be possible to create failures at a faster rate using the DZDHC diagnostic. Try that. If fewer or no failures occur running the DZDHC for a time equal to that which you ran the DZDHF, the problem most likely concerns the loading of Line Parameters, since the DZDHF changes the line parameters whereas the DZDHC does not.</p> <p>b. It will generally be beneficial to try the same procedures for troubleshooting DZDHF as DZDHC so it is recommended to follow the procedures below, even if you are running DZDHF.</p> <p>7. DZDHC Failures</p> <p>a. If difficulties occur with one line only, swap M7280 UART cards and see if the problem follows - i.e. that the problem moves from line 1 (Octal) to line 11 (Octal), etc.</p> <p>b. Be sure that the transmit strobe signal to the UARTs is long enough. It must be 250 nanoseconds or more. Note that this requires an added capacitor on the M796 to generate a wider "Data Strobe". (This capacitor is 100 pf).</p> <p>c. If difficulties occur on several lines, but only on one bit, check the buffered data leads, tran data leads, silo inputs, silo outputs, M7278 multiplexors, and M7278 Unibus drivers. Also check the auto-echo switch (M7277 E29 and E42), and the byte switch (M7277 E40 and E43).</p> <p>d. Receipt of a character that is one lower than that expected may be a failure of the current address up-counter system to function properly or a failure of the byte switch (see above).</p> <p>e. Receipt of a character one higher than expected might be a silo unloading problem; perhaps caused by noise on the Read NRC line or perhaps by improper one-shot times.</p> <p>f. Check ALL oneshots for accuracy. They should be no more than 20% longer or 10% shorter than their nominal values. This is particularly true if they are on the short side and the unit is running in high temperatures.</p> <p>g. Be sure that there is no crosstalk on the "Control Strobe" leads. (No noise pulses greater than 0.8 volts)</p>			
SIZE	CODE	NUMBER	REV
A	SP	DH11-0-11	A

DEC FORM NO DEC 16-1001-1002-11370
DRA 100

SHEET 24 OF 28

ENGINEERING SPECIFICATION		CONTINUATION SHEET	
TITLE DH11 Test Procedure			
<p>5. DEDNH Failures</p> <p>a. If all of the previous diagnostics have run error-free, failures of this test can only be in a limited area.</p> <p>b. Loop on the failing test and examine the W288 line parameter board for the presence of a high on "AE ENAB" for the failing line.</p> <p>c. Make sure that the above signal makes it to the E22 74154 multiplexer on the W289. The following toggle-in program sets auto-echo enable on one line and allows the receiver scanner to run continuously.</p> <pre>5000/ 52737 RIS 5022/ 137 Jump 5002/ 4000 bit #11 5024/ 5006 to 5006 5004/160020 in SCR 5006/ 13737 Now contents 5010/177570 of SR 5012/160020 to SCR 5014/ 52737 RIS 5016/ 10000 bit 15 (AE ENAB) 5020/160020 in LPR</pre> <p>Look at pin 10 of E22 on the W289 for negative pulses (i.e. the signal is almost always high, but has occasional excursions down to nominal 0 volts).</p> <p>d. Again operate the diagnostic, looping on the failing test. Look at W289 E18 pins 2 & 6 and E10 pins 3 & 4 for highs. Look at E18 pins 10 & 14 for high. Some of these may be alternately high and low, but what is important now is that they are high at least sometimes.</p> <p>e. Look at W289 E14 pin 3 for low pulses, E2 pin 3 for high pulses, E2 pin 6 for low pulses, and E1 pin 4 for high pulses. If you are O.K. at E2 pin 3, but not further on, check E2 pin 5 for being high at the same time as pin 4 (this should occur). Check E1 pin 5 for being low at the same time as pin 6 (this should occur). If the proper signals cannot be found on E2 pin 5 or E1 pin 5, examine the receiver sequencer - E21.</p> <p>W289 E21 Waveforms:</p>			
SIZE	CODE	NUMBER	REV
A	SP	DH11-0-11	A
DEC FORM NO DEC 16-(381)-1022-N370 DRA 108			
SHEET 25 OF 28			

ENGINEERING SPECIFICATION		CONTINUATION SHEET	
TITLE DH11 Test Procedure			
<p>W289 E21 Waveforms:</p> <p>Pin 15 2400 ns</p> <p>12 2000 ns</p> <p>10 2000 ns</p> <p>5 1200 ns</p> <p>7 800 ns</p> <p>2 400 ns</p> <p>The above waveforms can only be observed if the scanner stop flip-flop E44 pin 5 is setting and clearing (i.e. the receiver scanner mechanism is servicing characters).</p> <p>f. Trace the AE GO L lead and make sure that it causes W289 E34 to switch the UART transmitter scan leads and that it causes W277 E39 and E42 to switch the data source leads for the UART transmitters.</p> <p>g. If the problem occurs with one line only, try swapping the W280 UART cards to see if the problem follows - i.e. see if the problem that used to reported on line 7 (octal) is now found on line 17 (octal).</p> <p>9. DEDNH Failures</p> <p>a. If the following message is received-</p> <pre>##1524 MORE THAN 1 CHARACTER RECEIVED ##1524 BREAK DATA ERROR EXP REC EXP REC ##4444 ##4444 724444 744444</pre> <p>it indicates that the break circuitry did not function properly.</p> <p>b. Check the W278 E38, E51, E50, and E57 to make sure that the break bit is being set for the failing line. Do this while looping on the failing test. Check W278 E45, E46, E75, E76 to see if the setting of the break bit produces the appropriate high on the "TTL DATA OUT" lines. The 7400 gates E45, E46, E75, E76 are normally kept qualified by the high state of the Q outputs from the 74175's that comprise the Break Control Register. Setting of a bit is</p>			
SIZE	CODE	NUMBER	REV
A	SP	DH11-0-11	A
DEC FORM NO DEC 16-(381)-1022-N370 DRA 108			
SHEET 26 OF 28			

ENGINEERING SPECIFICATION		CONTINUATION SHEET	
TITLE DH11 Test Procedure			
<p>the Break Control Register brings the appropriate Q output to the low state, disabling the 7400 gate and placing a permanent high on the TTL DATA OUT line. The logic convention of the TTL DATA OUT lines is such that a high - space - 0 - BREAK.</p> <p>c. If the following message is received-</p> <pre>##6244 RECEIVER NOT BLINDED</pre> <p>it indicates that the half-duplex logic did not function correctly.</p> <p>d. While looping on the failing test, check the W288 to make sure that the "Half-Duplex" bit for the failing line is being set.</p> <p>e. Check the W289 to make sure that End of Character is being received from the UART that serves the failing line. If in doubt, swap the W280 UART cards and see if the diagnostic now reports the error on line 11 instead of 1, 12 instead of 2, etc. (The diagnostic reports line numbers in Octal) Also check the W289 E8, E20, E32, E42 to make sure that the half-duplex enable and end of character signals are disabling the E4, E16, E28, E39 gating appropriate to the erring line. End of Character is low while the UART is transmitting a character and comes high very briefly between characters. Loop on a test of a working line if you desire to see what it should look like.</p> <p>Make all of the above examinations while looping on the failing test, unless otherwise instructed.</p> <p>Note A: If the DH11 is not decoding the address being sent by the diagnostic, E72 pin 4 will have no pulses. If the DH11 is decoding the address but not sending Slave Sync back to the processor, the pulse will be about 25 microseconds long and occur every 45 microseconds or so. If proper response is occurred, times will be as indicated in F.1.a.3) on page 11.</p> <p>Note B: As indicated in the description of this test, this program tests only the effect of zeroing the byte count on line #8. To test other lines, replace the first three instructions of the program given with:</p> <pre>5000 13737 Move contents of 5002 177570 The switch register to 5004 160020 The SCR</pre> <p>Toggle the desired line number into the switch register.</p>			
SIZE	CODE	NUMBER	REV
A	SP	DH11-0-11	A
DEC FORM NO DEC 16-(381)-1022-N370 DRA 108			
SHEET 27 OF 28			

ENGINEERING SPECIFICATION		CONTINUATION SHEET	
TITLE DH11 TEST PROCEDURE			
<p>TABLE I WIRE LOCATOR</p> <p>NOTE: 1. WIRE-LINES 8-10 2. DISTRIBUTION PANEL (1-10 LINES) 3. WIRE-LINES 11-15 4. WIRE-LINES 16-20 5. WIRE-LINES 21-25 6. WIRE-LINES 26-30 7. WIRE-LINES 31-35 8. WIRE-LINES 36-40 9. WIRE-LINES 41-45 10. WIRE-LINES 46-50 11. WIRE-LINES 51-55 12. WIRE-LINES 56-60 13. WIRE-LINES 61-65 14. WIRE-LINES 66-70 15. WIRE-LINES 71-75 16. WIRE-LINES 76-80 17. WIRE-LINES 81-85 18. WIRE-LINES 86-90 19. WIRE-LINES 91-95 20. WIRE-LINES 96-100</p>			
SIZE	CODE	NUMBER	REV
A	SP	DH11-0-11	A
DEC FORM NO DEC 16-(381)-1022-N370 DRA 108			
SHEET 28 OF 28			

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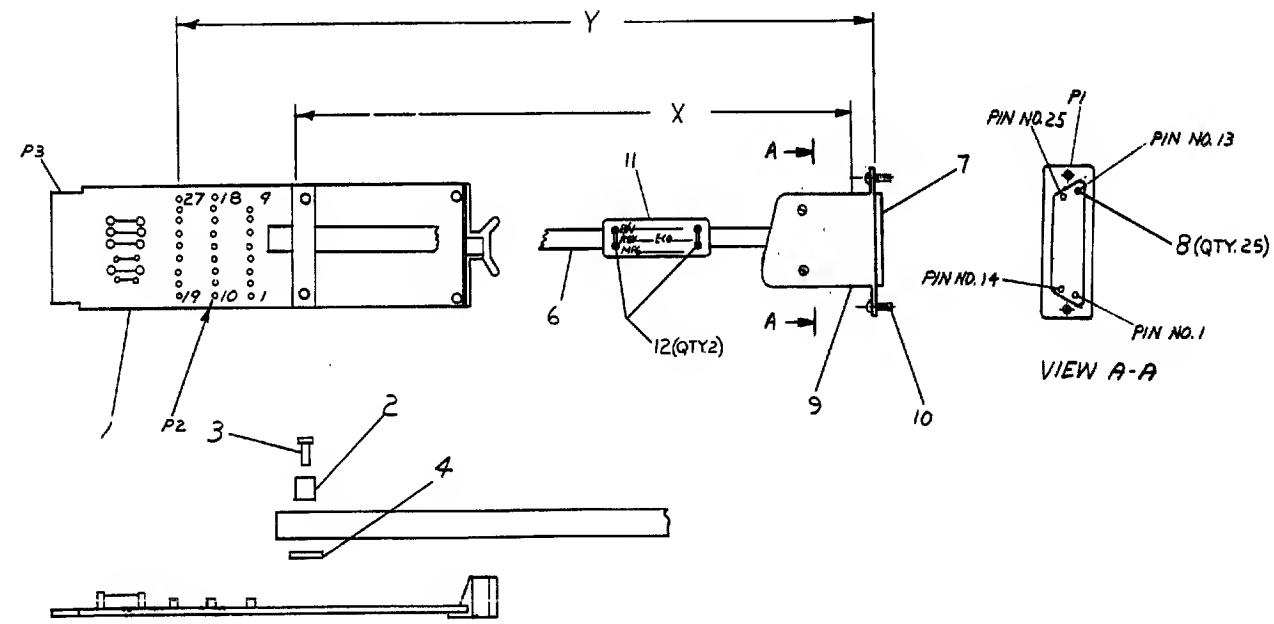
M9700 JUMPER FUNCTIONS

FUNCTIONS OF MODERN JUMPERS WHEN (INSTALLED)
A. EIA SECONDARY TRANSMIT AND RECEIVE DATA LINES TO EIA PINS 14 AND 16
B. 202 SECONDARY TRANSMIT AND RECEIVE DATA LINES TO EIA PINS 11-12
C. BELL 811B RESTRAINT FUNCTION IS MONITORED BY SECONDARY RECEIVE
D. BUSY-BELL 103F FORCE BUSY FUNCTION DRIVEN BY REQUEST TO SEND

LEGEND			BCØIR WIRE TABLE			
NUMBER	VARIATION	COLOR	PI-PIN	P2-LUG	SIGNAL NAME	P3-PIN
	DIM-X	DIM-Y				
BCØIR-25	25' ± 3"	25' ± 3"	BLU-WHT	1	GROUND	C2
BCØIR-50	50' ± 2 1/4"	50' ± 3"	WHT-BLU	2	TRANSMITTED DATA	E2
			ORN-WHT	3	RECEIVED DATA	F2
			WHT-ORN	4	REQUEST TO SEND	L2
			GRN-WHT	5	CLEAR TO SEND	K2
			WHT-GRN	6	DATA SET READY	N2
			BRN-WHT	7	GROUND	C2
			WHT-BRN	8	CARRIER	P2
			SLA-WHT	9	+POWER (NOT USED)	
			WHT-SLA	10	-POWER (NOT USED)	
			BLU-RED	11	BELL 202 SEC. TRANS. DATA	E1
			RED-BLU	12	BELL 202 SEC. RECV. DATA	F1
			ORN-RED	13	SEC. CLEAR TO SEND	K1
			SLA-RED	14	EIA SECONDARY TRANS. DATA	E1
			SLA-GRN	15	SERIAL CLOCK TRANS.	H2
			RED-BRN	16	EIA SECONDARY RECV. DATA	F1
			SLA	17	SERIAL CLOCK RECV.	J2
			RED-SLA	18	UNASSIGNED NOT USED	
			BLU-BLK	19	SECONDARY REQUEST TO SEND	L1
			BLK-BLU	20	DATA TERMINAL READY	R2
			ORN-BLK	21	SIGNAL QUALITY DETECT	M1
			BLK-ORN	22	RING	M2
			GRN-BLK	23	SIGNAL RATE SELECT	S2
			BRN-RED	24	EXTERNAL CLOCK	H1
			RED-ORN	25	FORCE BUSY	S1
SPECIAL						
SHIELD A	CUT	4	SHIELD A (GROUND)			C2
SHIELD B	CUT	5	SHIELD B (GROUND)			C2

NOTES:

- IF USED FOR FOLLOWING OPTIONS CUT ALL JUMPER EXCEPT (DC11, DP11, DM11-DB, DS10, DQ11 AND DS11)
(2) 202 JUMPERS
REF. NOTE #6
DN11-(2) ETA JUMPERS
DM11-DC/DM11-BB(2) 202 AND (1) B11 JUMPERS. FOR OTHER APPLICATIONS REFER TO CHART ON LEFT FOR M9700 JUMPER FUNCTIONS.
2. CIRCLED LETTERS ON RIGHT OF WIRE TABLE INDICATE THOSE PINS WHICH ARE DEPENDENT ON M9700 JUMPER FUNCTIONS AT LEFT.
3. B11 JUMPER CONNECTS J2 TO F1 SOLDER #6 (CABLE) TO #1 (CONNCARD), APPLY #4 (TAPE) AROUND #6 (CABLE), ASSEMBLE #2 (CABLE CLAMP) AND #3 (EYELETS) TO #1 (CONV. CARD) AFTER SOLDERING
4. EACH SOLDERED CONNECTION ON P1 SHALL BE INSULATED WITH A #4 ENCH. PIECE OF TIEWRAP #5 (TUBING)
5. P1-15 AND P1-17 ARE SHIELDED LEADS
6. OLDER REV. BCØIR CABLES HAD "3Ø1" JUMPERS (M9700+BCØ5C-25). NEW REV. CABLES (M9700) HAVE THESE CONNECTIONS IN THE ETCH. DO NOT REMOVE 3Ø1 JUMPERS ON OLD REV. CABLES.



2	TIEWRAP	9007031	12
1	CABLE LABEL	9009332	11
1	SCREW, RETAINER (2/KIT)	1210493-51	10
1	HOOD WITH STRAIN RELIEF	1210493-50	9
25	PINS, 24 TO 28 AWG.	1210493-43	8
1	CONN. PLUG	1210493-31	7
1	CONN. PLUG #BB25-P	1205886	6
1	HOOD, GUNW. #BB51226-1	1205885	5
1	CABLE 25 CONDUCTOR	9107736	4
1	SHRINKABLE TUBING	9107255	3
2	EYELET A-94	9006741	2
1	CLAMP CABLE	1202790-01	1
1	M9700 CABLE CONNECTOR	M9700	1

FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP 11					
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES		DATE 10-12-73			
TOLERANCES		DATE 10-16-70			
DECIMALS	ANGLES	DATE 10-16-73			
.XXX = .005	± 30'	DATE 10-16-70			
.XX = .02		DATE 10-16-70			
.X = .1		DATE 10-16-70			
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY 1		DATE 10-16-70			
MATERIAL		NEXT HIGHER ASSY.			
FINISH		A-PL-DC11-DA-0			
SCALE		DUA BCØIR-Ø-Ø			
SHEET		1 OF 1			

DATE	10-12-73
CHK'D.	J. FLEMING
ENG.	V. BASTIANI
PROJ. ENG.	V. BASTIANI
PROD.	D. CULL
DATE	10-16-70

TITLE	CABLE CARD ASSY (BCØIR)		
SIZE	CODE	NUMBER	REV.
DUA	BCØIR-Ø-Ø		H
DIST.			

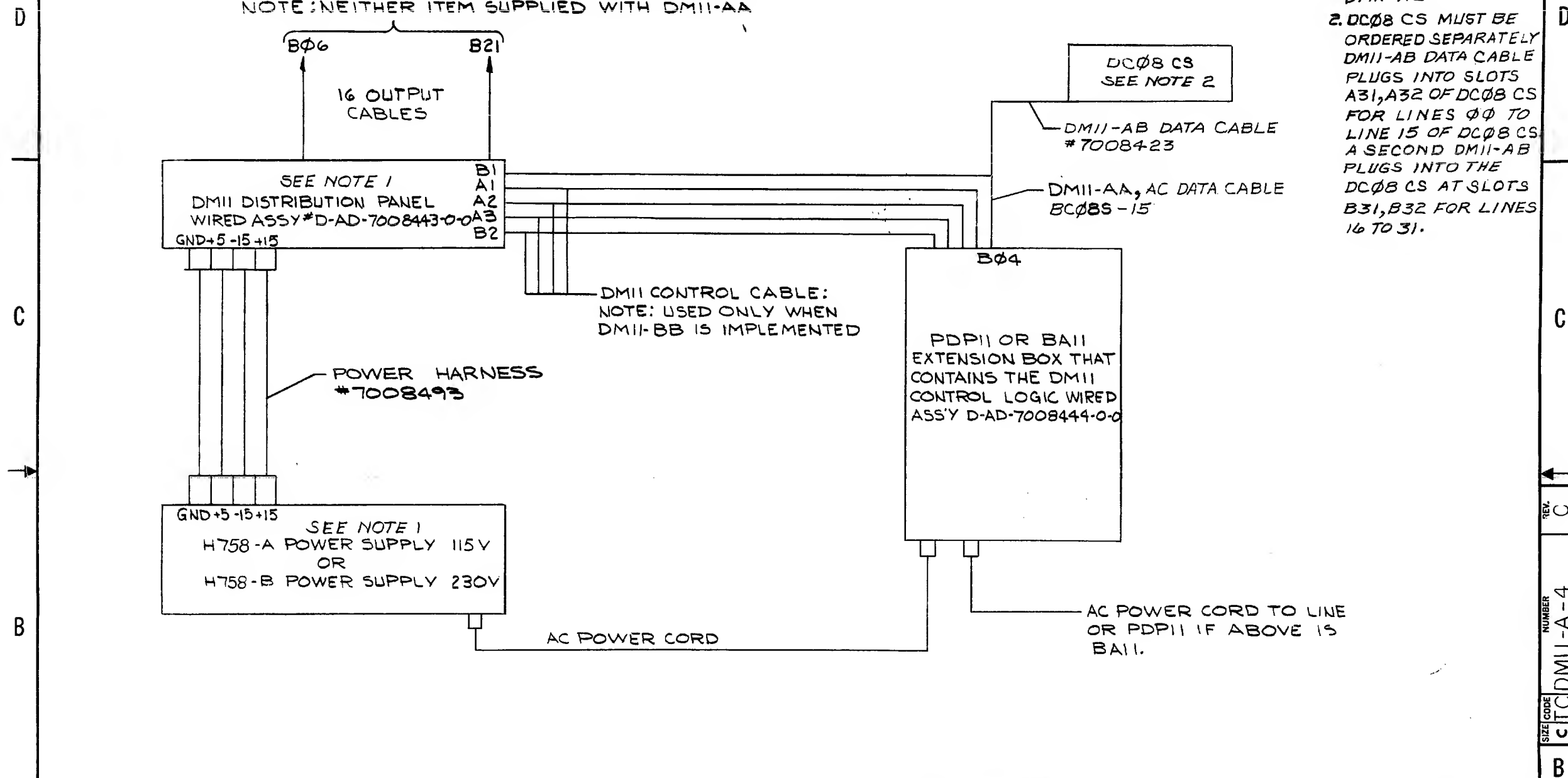
REVISIONS		REV.
CHNG	CHANGE NO.	
1	BCØIR-00003	U
REVISED SØREDRAW		
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1/10/78 7-28 24		

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OUTPUT CABLES ARE EITHER BCØIR-25 IF EIA OR M973 MATE-N-LOCK CONNECTER CARD FOR PDP-11 TTY
NOTE: NEITHER ITEM SUPPLIED WITH DM11-AA

NOTES:

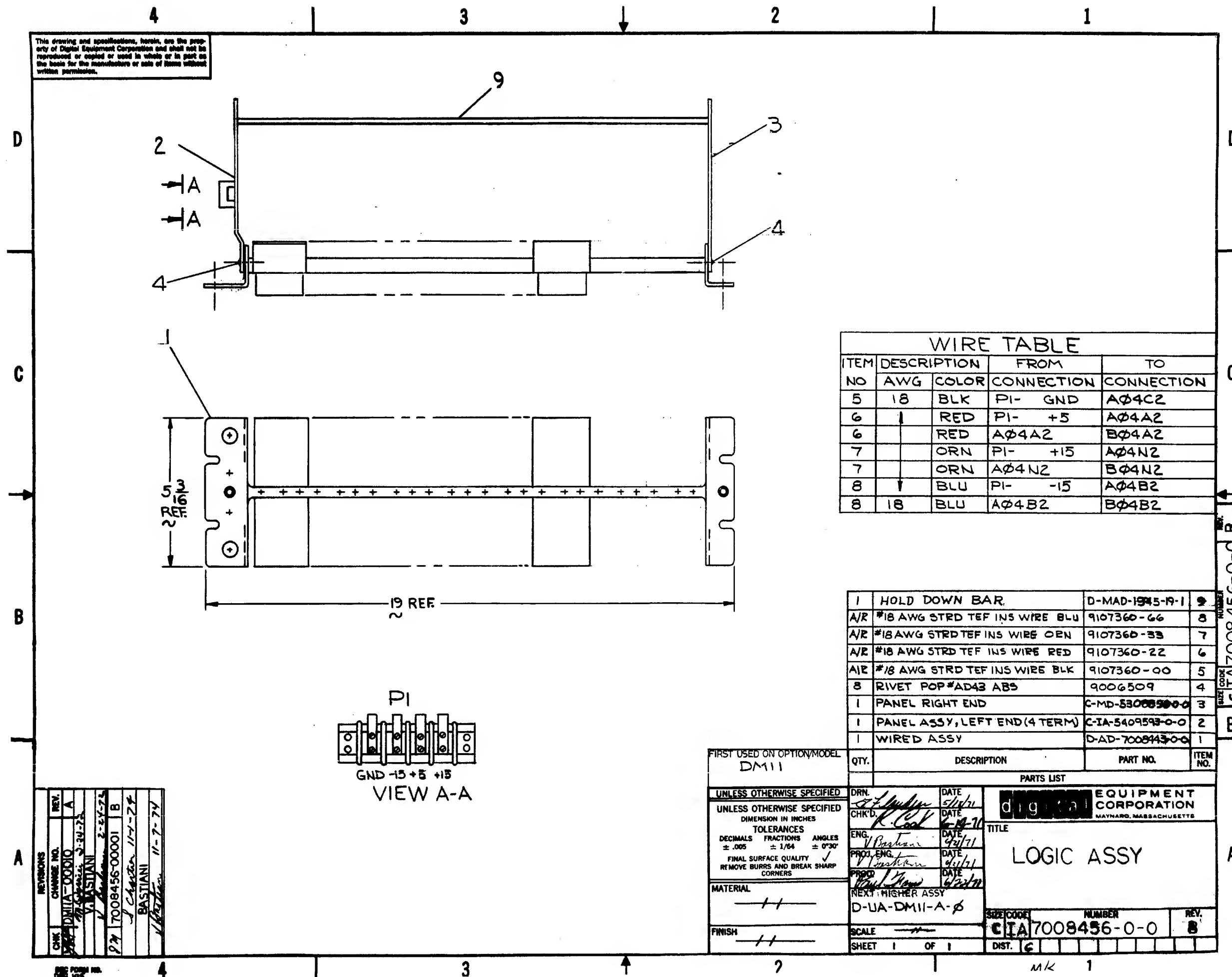
1. DISTRIBUTION PANEL 7008443 AND POWER SUPPLY H758 SUPPLIED ONLY WITH DM11AA, DM11-AC
2. DCØ8 CS MUST BE ORDERED SEPARATELY DM11-AB DATA CABLE PLUGS INTO SLOTS A31, A32 OF DCØ8 CS FOR LINES ØØ TO LINE 15 OF DCØ8 CS. A SECOND DM11-AB PLUGS INTO THE DCØ8 CS AT SLOTS B31, B32 FOR LINES 16 TO 31.



REV.	CHG. NO.	REV.	CHG. NO.
1	1	2	2
3	3	4	4
5	5	6	6
7	7	8	8
9	9	10	10
11	11	12	12
13	13	14	14
15	15	16	16
17	17	18	18
19	19	20	20
21	21	22	22
23	23	24	24
25	25	26	26
27	27	28	28
29	29	30	30
31	31	32	32
33	33	34	34
35	35	36	36
37	37	38	38
39	39	40	40
41	41	42	42
43	43	44	44
45	45	46	46
47	47	48	48
49	49	50	50
51	51	52	52
53	53	54	54
55	55	56	56
57	57	58	58
59	59	60	60
61	61	62	62
63	63	64	64
65	65	66	66
67	67	68	68
69	69	70	70
71	71	72	72
73	73	74	74
75	75	76	76
77	77	78	78
79	79	80	80
81	81	82	82
83	83	84	84
85	85	86	86
87	87	88	88
89	89	90	90
91	91	92	92
93	93	94	94
95	95	96	96
97	97	98	98
99	99	100	100

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
DM11				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES				
DECIMALS	ANGLES	TITLE		
.XXX = .005 .XX = .02 .X = .1	±0° 30'	INTERCONNECTION A DM11		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		PARTS LIST		
MATERIAL		NEXT HIGHER ASSY.		
FINISH		SCALE		
SHEET 1 OF 1		DIST. G		
		SIZE CODE C IC		
		NUMBER DM11-A-4		
		REV. C		

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WIRE TABLE				
ITEM NO	DESCRIPTION	FROM	TO	
AWG	COLOR	CONNECTION	CONNECTION	
5	18	BLK	PI- GND	AØ4C2
6	1	RED	PI- +5	AØ4A2
6		RED	AØ4A2	BØ4A2
7		ORN	PI- +15	AØ4N2
7		ORN	AØ4N2	BØ4N2
8	1	BLU	PI- -15	AØ4B2
8	18	BLU	AØ4B2	BØ4B2

1	HOLD DOWN BAR.	D-MAD-1945-19-1	2
A/R	#18 AWG STRD TEF INS WIRE BLU	9107360-66	8
A/R	#18 AWG STRD TEF INS WIRE ORN	9107360-33	7
A/R	#18 AWG STRD TEF INS WIRE RED	9107360-22	6
A/R	#18 AWG STRD TEF INS WIRE BLK	9107360-00	5
8	RIVET POP #AD43 ABS	9006509	4
1	PANEL RIGHT END	C-MD-5300850-0	3
1	PANEL ASSY, LEFT END (4 TERM)	C-IA-5409593-0-0	2
1	WIRED ASSY	D-AD-7008443-0-0	1

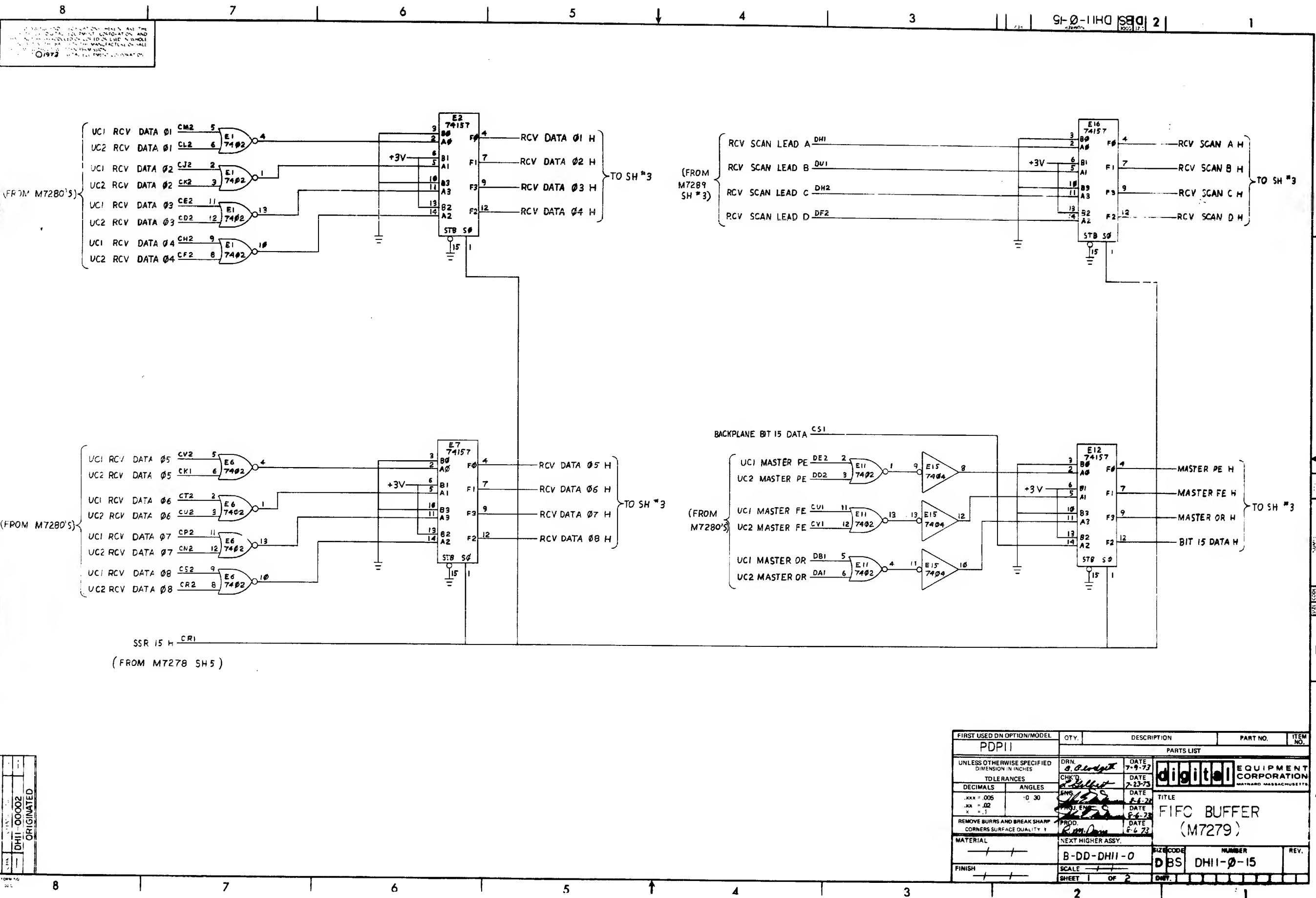
FIRST USED ON OPTION/MODEL DM11		QTY.	DESCRIPTION	PART NO.	ITEM NO.
UNLESS OTHERWISE SPECIFIED		PARTS LIST			
UNLESS OTHERWISE SPECIFIED		DRN.	DATE	digital EQUIPMENT CORPORATION WAYNARD, MASSACHUSETTS	
DIMENSION IN INCHES		CHK'D.	DATE		
TOLERANCES		ENG.	DATE		
DECIMALS FRACTIONS ANGLES		PROJ. ENG.	DATE		
± .005 ± 1/64 ± 0°30'		PROD.	DATE		
FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS		NEXT HIGHER ASSY D-UA-DM11-A-Ø		TITLE LOGIC ASSY	
MATERIAL — 11 —		SCALE — 11 —		SIZE CODE CITA7008456-0-0	
FINISH — 11 —		SHEET 1 OF 1		NUMBER CITA7008456-0-0	
				REV. 8	

REVISIONS	CHANGE NO.	REV.
1	1	A
2	2	B
3	3	C
4	4	D

SEE FORM NO. 103

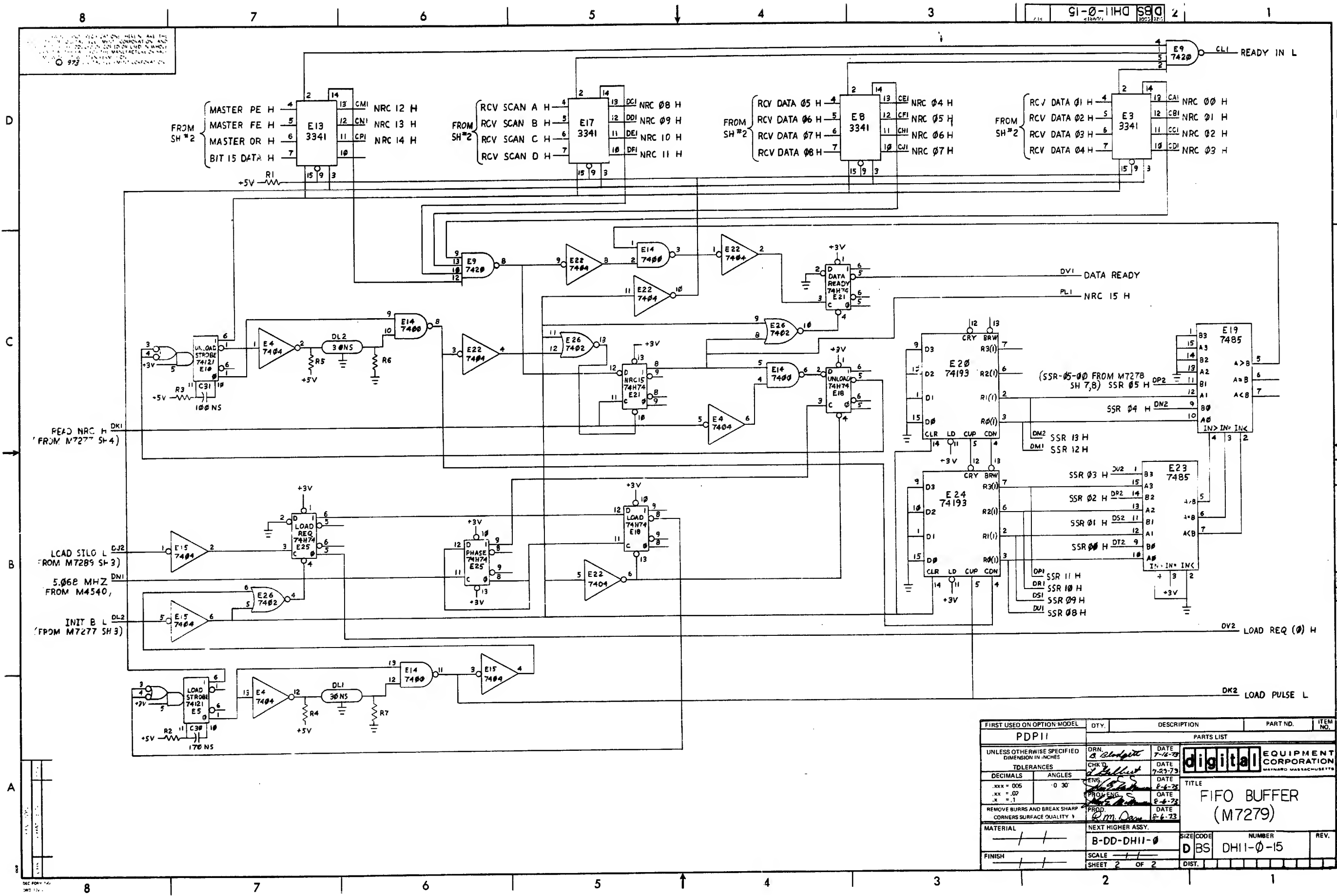
SIZE CODE CITA7008456-0-0 B

MK 1



ALL DIMENSIONS ARE IN INCHES
UNLESS OTHERWISE SPECIFIED
TOLERANCES
DECIMALS ANGLES
.XXX .005 .0 30
XXX .02 .0 30
X .1 .0 30
REMOVE BURRS AND BREAK SHARP
CORNERS SURFACE QUALITY 1
MATERIAL
FINISH
SCALE
SHEET 1 OF 2

FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDPII					
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES		DRN. <i>8.0 length</i>	DATE <i>7-9-73</i>	<div>digital</div> EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
TOLERANCES		CHK'D <i>8.0 length</i>	DATE <i>7-23-73</i>		
DECIMALS	ANGLES	ENG. <i>8.0 length</i>	DATE <i>8-1-73</i>		
.XXX = .005	.0 30	PROJ. ENG. <i>8.0 length</i>	DATE <i>8-6-73</i>		
.XX = .02		PROD. <i>8.0 length</i>	DATE <i>8-6-73</i>		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY 1					
MATERIAL	NEXT HIGHER ASSY.				
B-DD-DHII-0					
FINISH	SCALE		SIZE CODE		
	SHEET 1 OF 2		NUMBER		
			REV.		
			DBS DHII-0-15		
			DWT.		



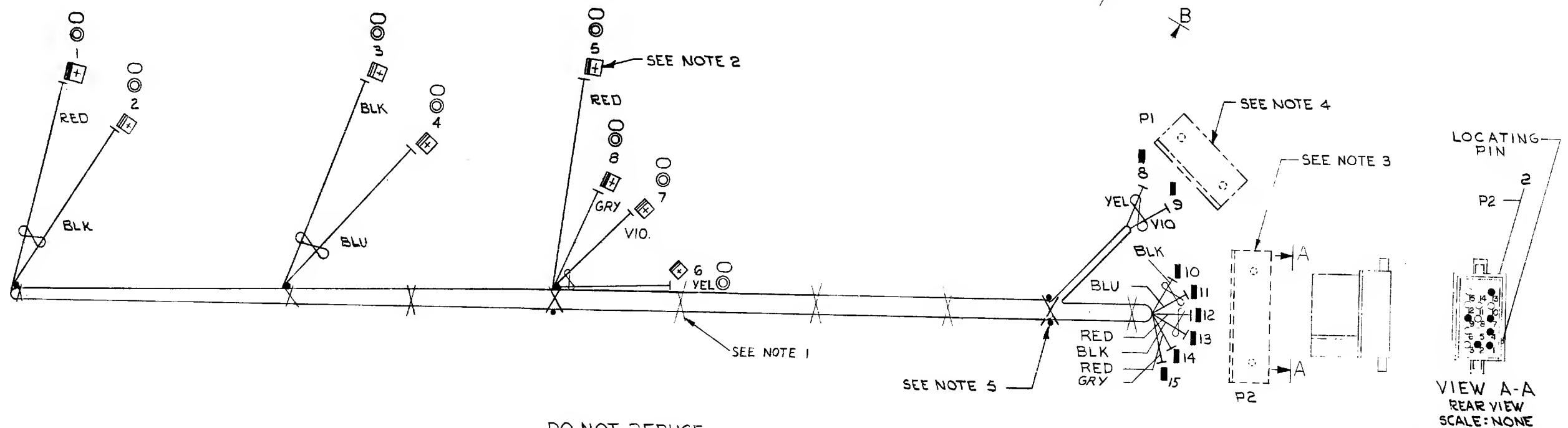
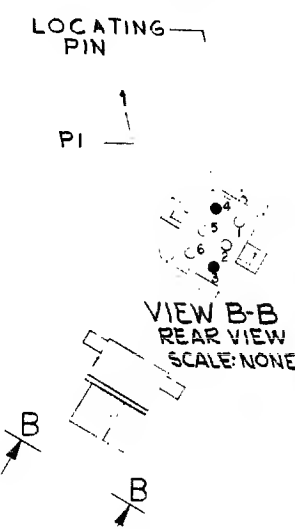
FIRST USED ON OPTION MODEL		DTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP11		PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES		DRN. <i>B. Blodgett</i>	DATE 7-16-73	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
TOLERANCES		CHK'D. <i>B. Blodgett</i>	DATE 7-23-73		
DECIMALS	ANGLES	ENG. <i>B. Blodgett</i>	DATE 8-4-73	TITLE FIFO BUFFER (M7279)	
.XXX = .005	.0 30'	PROV'G. <i>B. Blodgett</i>	DATE 8-4-73		
.XX = .02		PROD. <i>B. Blodgett</i>	DATE 8-4-73		
.X = .1					
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY 1					
MATERIAL		NEXT HIGHER ASSY.		SIZE CODE	NUMBER
+ +		B-DD-DH11-0		D BS	DH11-0-15
FINISH		SCALE		REV.	
+ +		SHEET 2 OF 2		DIST.	

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WIRE LIST									
ITEM NO	AWG	COLOR	POINT	FROM		TO		WITH	SIGNAL
				CONNECTION		CONNECTION			
5	14	RED	1	---	8,9	12	P2-4	3	+5V
	TWP	BLK	2	---	8,9	13	P2-7	3	GND
6	14	BLK	3	---	8,9	10	P2-9	3	GND
	TWP	BLU	4	---	8,9	11	P2-13	3	-15V
4	14	RED	5	---	8,9	14	P2-1	3	+5V
7	18	YEL	6	---	8,9	8	P1-4	3	AC LO
	TWP	VIO	7	---	8,9	9	P1-3	3	DC LO
11	18	GRY	8	---	8,9	15	P2-2	3	+15V

0-0-1996002 2

- NOTES:
1. USE TIE WRAPS (X) ITEM 10 APPROXIMATELY EVERY THREE (3) INCHES WHEN NECESSARY, AND AT EVERY BREAK-OUT POINT.
 2. ATTACH MALE FASTON DEC * 9008219-0 WITH WOOD SCREWS (8 PLACES).
 3. USE CONN. BRKT C-MD-9305761-H15-0. MOUNT WITH WOOD SCREWS. USE MATING CONN. 1209350-15.
 4. USE CONN. BRKT C-MD-9305761-H6-0. MOUNT WITH WOOD SCREWS. USE MATING CONN. 1209350-06.
 5. DOT (•) INDICATES NAIL LOCATIONS FOR ASSEMBLY USE ONLY. COVER NAILS WITH SHRINK TUBING TO PREVENT CUTTING HARNESS.

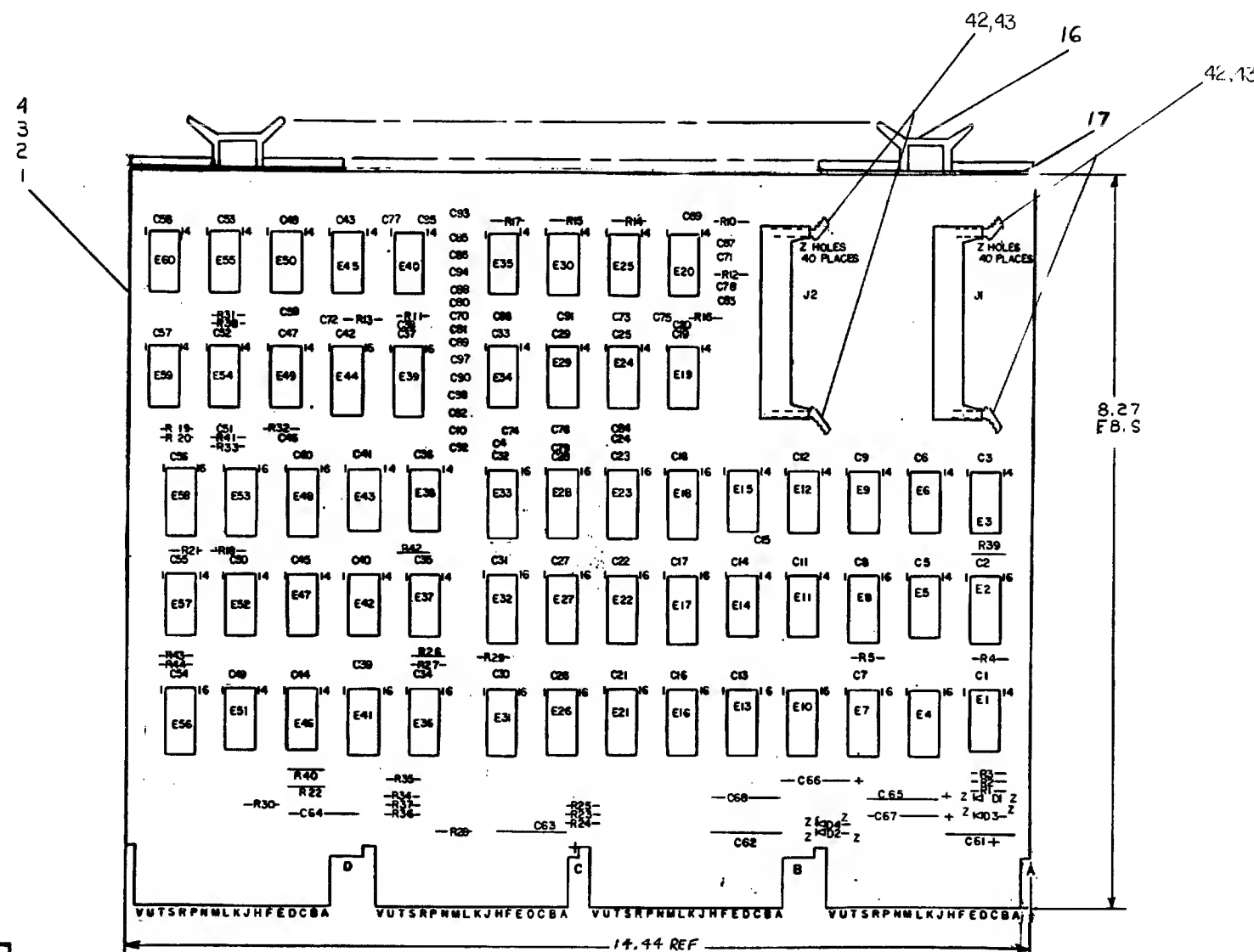


A/R	WIRE #18 AWG 22 GRY	9107360-88	11
I	A/R WRAP, TIE	9007031	10
○	A/R TUBING, SHRINK	9107305-02	9
⊙	B CONN. SOLDERLESS	9009262-0	8
	A/R WIRE #18 TWP YEL/VIO	9107430-47	7
	A/R WIRE #14 TWP BLK/BLU	9107440-06	6
	A/R WIRE #14 TWP BLK/RED	9107440-02	5
	A/R WIRE #14 AWG RED	9107370-22	4
	8 PIN, MALE	1209378-00	3
	1 HOUSING, CONN. 15 PIN	1209351-13	2
	1 HOUSING, CONN. 6 PIN	1209351-06	1

FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST					
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES		DRN.	DATE	digital EQUIPMENT CORPORATION	
TOLERANCES		DATE	DATE	MAYNARD MASSACHUSETTS	
DECIMALS	ANGLES	DATE	DATE	TITLE	
XXX = .005	±0° 30'	DATE	DATE	OPTION HARNESS	
XX = .02		DATE	DATE	DH11	
X = .1		DATE	DATE		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY V		DATE	DATE		
MATERIAL		NEXT HIGHER ASSY.			
SEE PARTS LIST		SIZE CODE			
FINISH		NUMBLR			
		DIA 7009561-0-0			
		REV. C			
		SHEET 1 OF 1			
		DIST.			

REV	CHANGE NO	DATE	BY	CHK
1	7009561-00001	A	V. BOEN	
2	7009561-00002	C	H. KWAN	
3	7009561-00003	C	H. KWAN	
4	7009561-00004	C	H. KWAN	
5	7009561-00005	C	H. KWAN	
6	7009561-00006	C	H. KWAN	
7	7009561-00007	C	H. KWAN	
8	7009561-00008	C	H. KWAN	
9	7009561-00009	C	H. KWAN	
10	7009561-00010	C	H. KWAN	
11	7009561-00011	C	H. KWAN	
12	7009561-00012	C	H. KWAN	
13	7009561-00013	C	H. KWAN	
14	7009561-00014	C	H. KWAN	
15	7009561-00015	C	H. KWAN	
16	7009561-00016	C	H. KWAN	
17	7009561-00017	C	H. KWAN	
18	7009561-00018	C	H. KWAN	
19	7009561-00019	C	H. KWAN	
20	7009561-00020	C	H. KWAN	

1. FOR $-15V$ TO $-10V$ AND $+15V$ TO $+10V$
SEE SHEET 7 OF 7
2. THE SIGNALS "SEC TX" AND "SEC RX" REFER TO ASYNCHRONOUS OPERATION ONLY.
WHEN THE MODULE IS USED IN A SYNCHRONOUS APPLICATION THE SIGNALS MAY
BE USED AS "NEW SYNC" AND "DATA SET ROY" FOR THAT LINE.



REF	X Y COORDINATE HOLE LOCATION	K-CO-M7808-B-4	1
REF	ASSY/DRILL HOLE LAYOUT	D-AH-M7808-B-5	2
REF	MODULE ECO HISTORY	B-MH-M7808-B-6	3
1	ETCHED CIRCUIT BOARD	5010884	4
58	C1-3.5,9,11-58	CAP .01 UF, 100V, $\pm 20\%$	5
33	C4,10,58,89-88	CAP 470 PF, 100V, $\pm 5\%$	6
1	C80	CAP 82 PF, 100V, $\pm 5\%$	7
8	C61 THRU C88	CAP 8.8 UF, 35V, $\pm 10\%$	8
4	D1,2,3,4	DIODE 1N4733A ZENER	9
2	J1,J2	CONNECTOR 40 PIN	10
28	R1-4,18-30,32-38,40-43	RES. 750 1/4W 5%	11
1	R31	RES. 220 1/4W 5%	12
8	R10-17	RES. 33K 1/4W 10%	13
4	R6,7,8,9	RES. 330 1/2W 5%	14
1	R44	RES. 330 1/4W 5%	15
4		HANDLE FLIP CHIP	16
8		EYELET	17
1	E50	I.C. DEC 7474	18
8	E18,20,24,25,29,30,34,35	I.C. DEC 1489L	19
8	E17,18,22,23,27,28,32,33	I.C. DEC 74151	20
8	E4,7,10,13,16,21,26,31	I.C. DEC 74175	21
6	E5,6,9,11,12,15	I.C. DEC 1488	22
2	E14,49	I.C. DEC 7410	23
1	E2	I.C. DEC 7442	24
2	E1,42	I.C. DEC 7417	25
1	E8	I.C. DEC 74123	26
4	E3,38,54,60	I.C. DEC 8881	27
2	E36,53	I.C. DEC 8268	28
2	E41,44	I.C. DEC 8938	29
1	E46	I.C. DEC 8640	30
1	E51	I.C. DEC 7418	31
1	E56	I.C. DEC 7489	32
1	E37	I.C. DEC 74197	33
2	E45,47	I.C. DEC 7400	34
1	E52	I.C. DEC 7408	35
2	E55,57	I.C. DEC 8815	36
2	E40,43	I.C. DEC 7404	37
1	E48	I.C. DEC 8271	38
2	E39,58	I.C. DEC 4015	39
1	E58	I.C. DEC 7486	40
2	R5,39	RES. 10K, 1/4W, 5%	41
2		LEFT LATCH	42
2		RIGHT LATCH	43
AVR	W/RE 30 AWG	905740-55	44

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITER NO.
PARTS LIST				
ETCH BOARD REV		D		
		DRN. <i>G. Wilson</i>	DATE 7/15/74	<div><div>digital</div><div>EQUIPMENT CORPORATION <small>NAYNARD, MASSACHUSETTS</small></div></div> <div>TITLE MODEM CONTROL</div>
		CHK'D. <i>Robert J. ...</i>	DATE 8-1-74	
		ENG. <i>W. J. ...</i>	DATE 8-5-74	
		PROJ. ENG. <i>W. J. ...</i>	DATE 8-1-74	
		PRD. <i>W. J. ...</i>	DATE 8-30-74	
		NEXT HIGHER ASSY		
DEC NO.	EIA NO.	SCALE NONE		SIZE CODE NUMBER DCS 117808-0-1
CONVERSION CHART		SHEET 1 OF 7		REV. J
		DIST.		

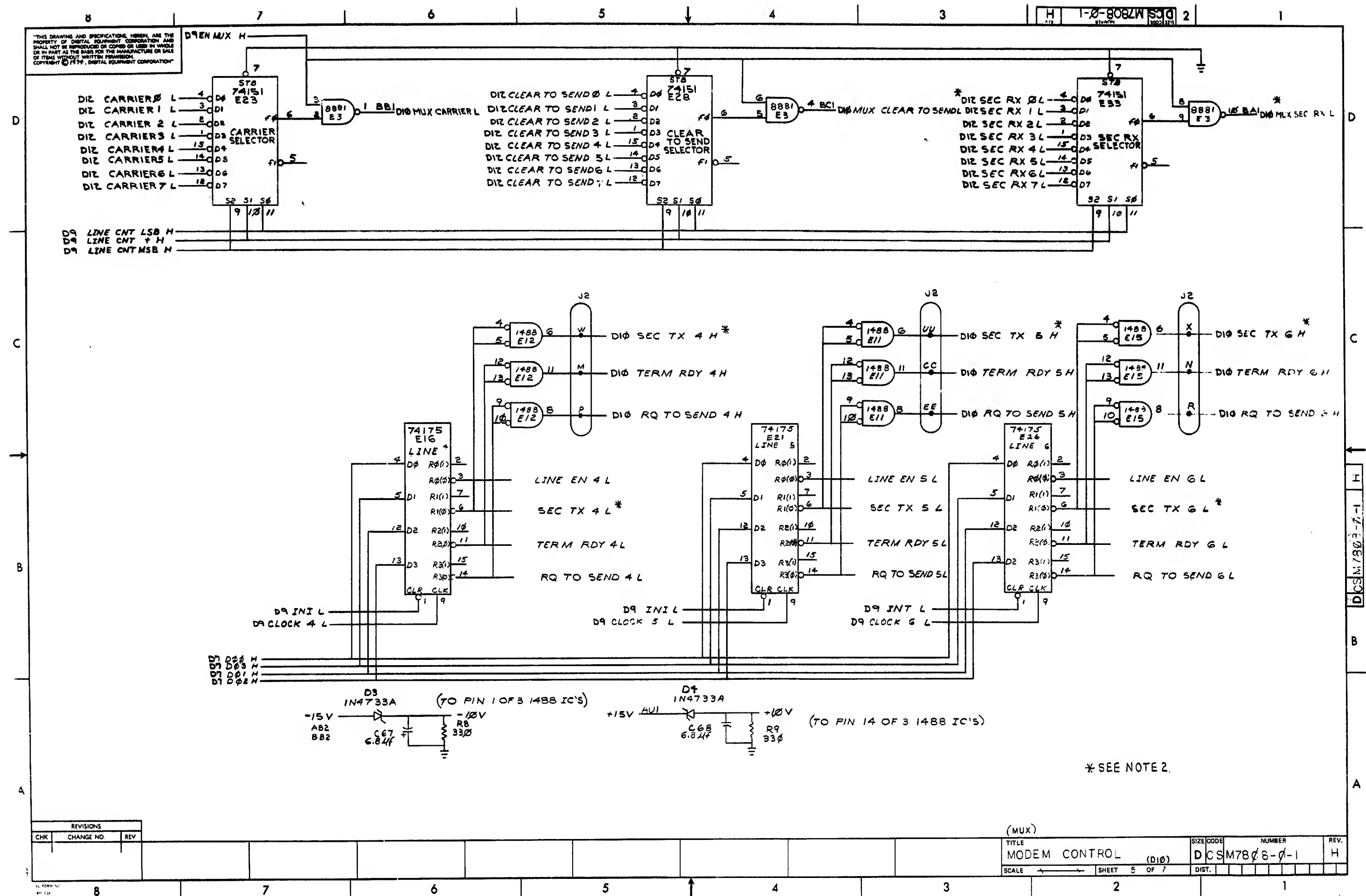
DEC	4015	8 16
DEC	8271	8 16
DEC	7989	8 16
DEC	8640	1 8
DEC	8266	8 16
DEC	74123	8 16
DEC	7442	8 16
DEC	74175	8 16
DEC	74151	8 16
	IC TYPE	GND + 5V
GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY. EXCEPTIONS ARE STATED ABOVE		
IC PIN LOCATIONS		

[illegible]

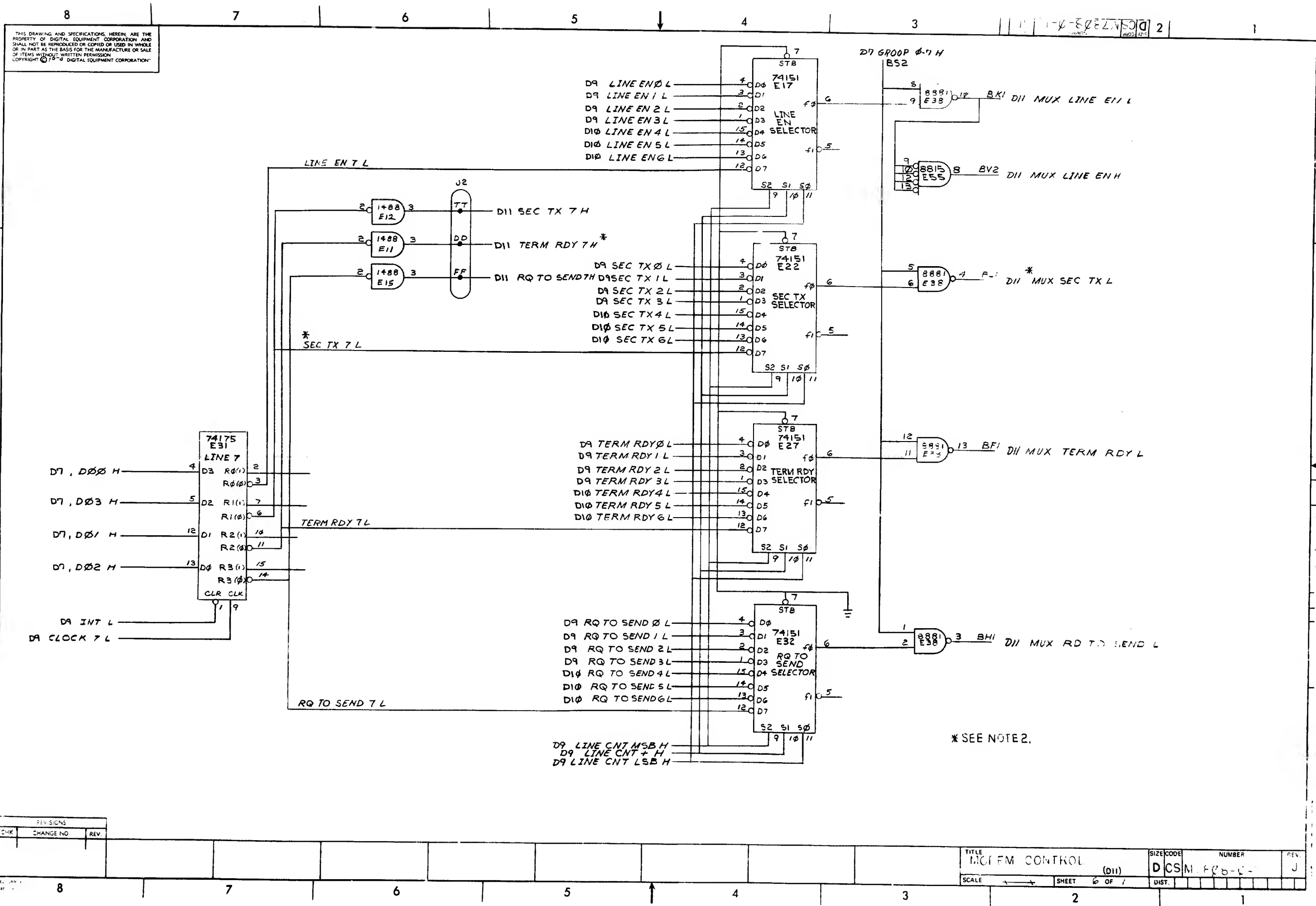
* REMOVE WIRE TO INHIBIT INTERRUPTS FROM TRANSITIONS.



TITLE MODEM CONTROL (D7)				SIZE CODE D CS		NUMBER M7808-0-1				REV. J	
SCALE 1/1		SHEET 2 OF 7		DIST.							



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REVISIONS		
CHK	CHANGE NO	REV.

TITLE		SIZE CODE	NUMBER	REV.
MICEM CONTROL (D11)		DCS	100-0-0	J
SCALE	SHEET	OF	DIST.	
	6	1		

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NOTES:

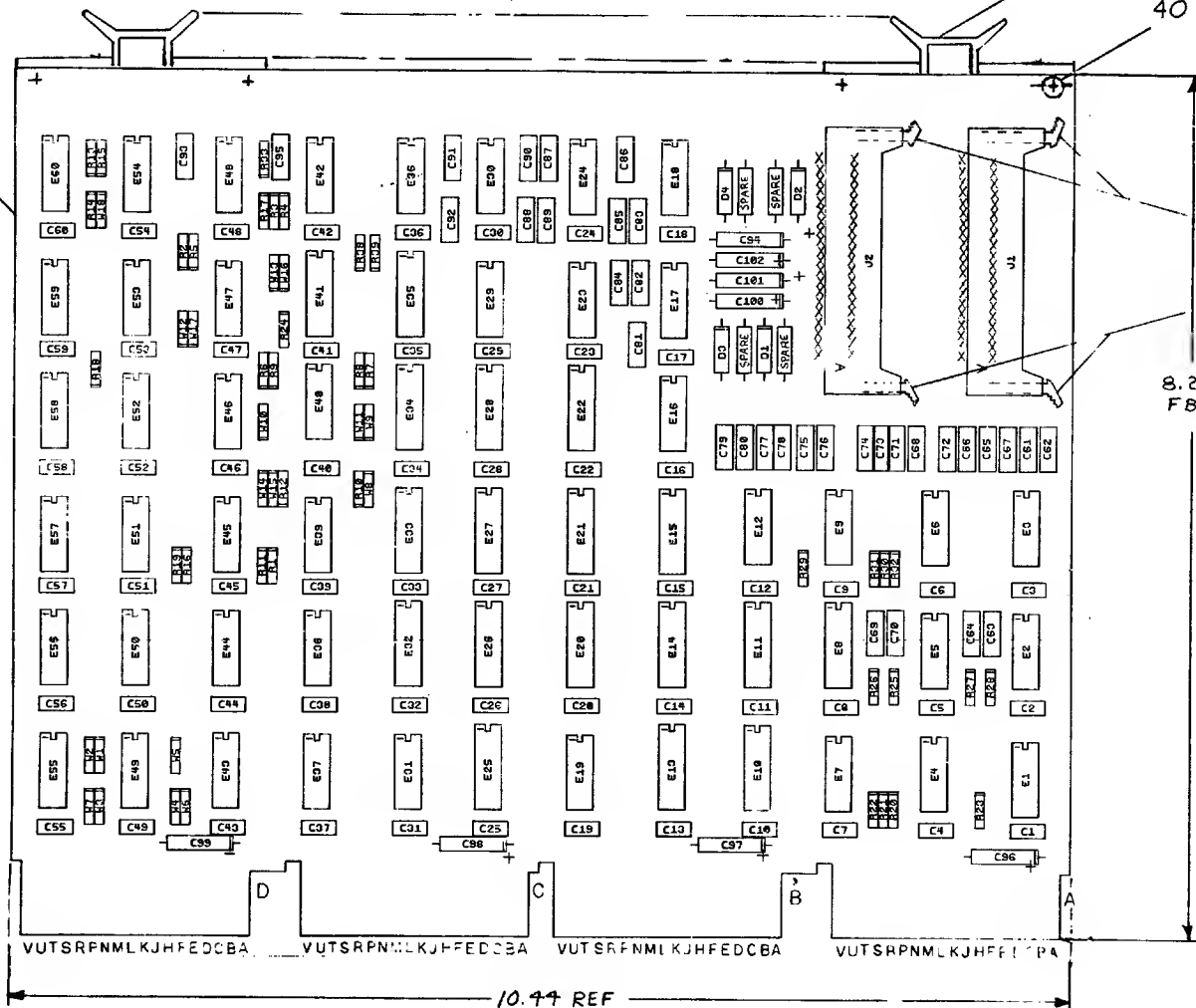
- ALL UNUSED PINS ON J1, J2 GO TO GND
- THE SIGNALS SEC TX AND SEC RX REFER TO ASYNCHRONOUS OPERATION ONLY. WHEN THE MODULE IS USED IN A SYNCHRONOUS APPLICATION THE SIGNALS MAY BE USED AS "NEW SYNC" AND "DATA SET READY" FOR THAT LINE.

JUMPER TABLE

JUMPER	BIT
W1	D05
W2	D02
W3	D03
W4	D06
W5	D07
W6	D05
W7	D04
W8	A12
W9	A09
W10	A08
W11	A10
W12	A04
W13	A05
W14	A11
W15	A03
W16	A06
W17	A07

JUMPER REMOVED
INTERRUPT
VECTOR = 0

JUMPER REMOVED
DEVICE
SELECT = 1



AA2, BA2, CA2, DA2
AC2, AT1, BC2, BT1
CC2, CT1, DC2, DT1

C1-C60
.0144

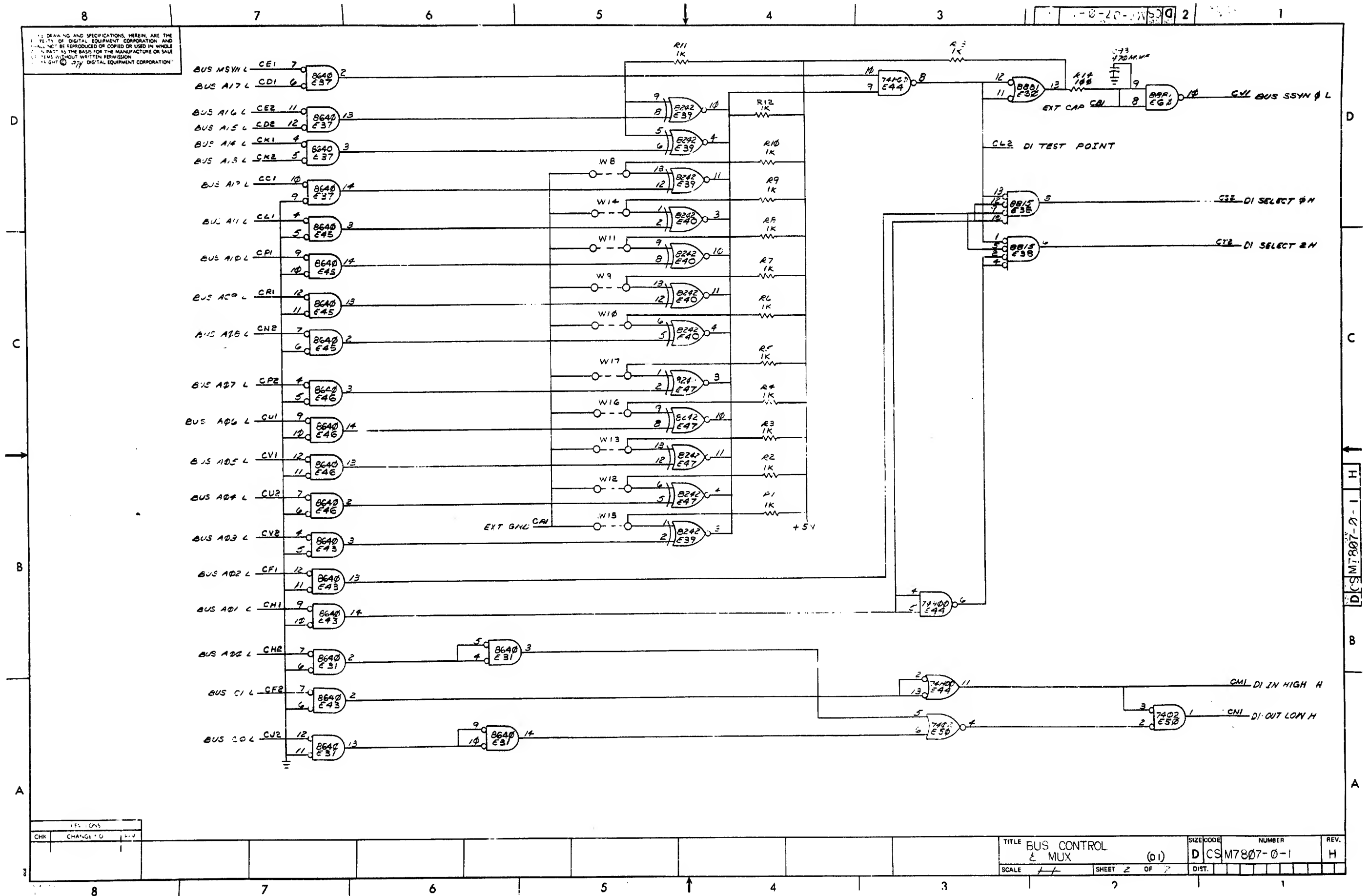
C96-C99
6.844

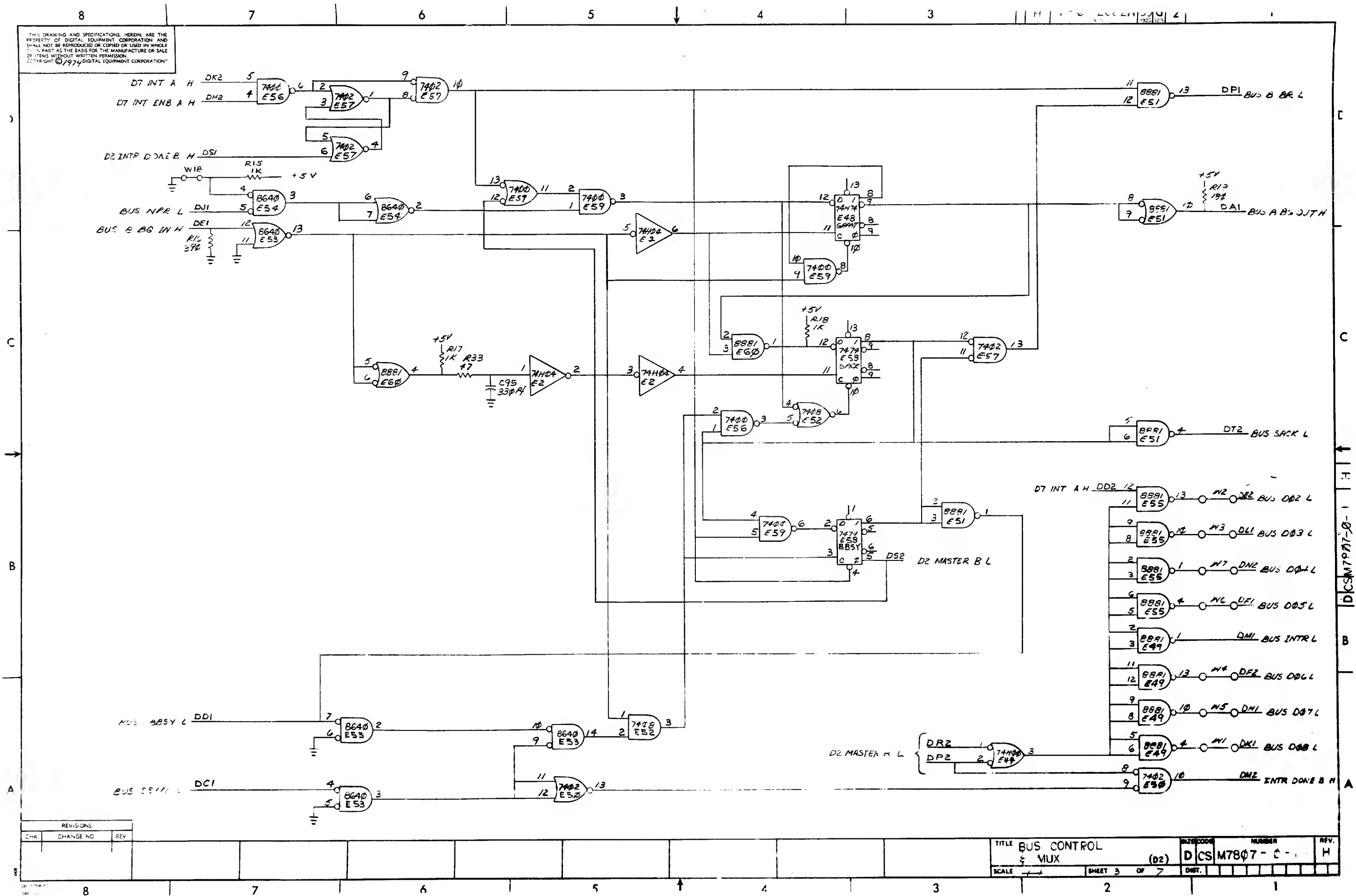
DEC 8640	1	8
DEC IC 7442	8	16
DEC IC 74175	8	16
DEC IC 74151	8	16
IC TYPE	GND	+5V
GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY. EXCEPTIONS ARE STATED ABOVE.		
IC PIN LOCATIONS		

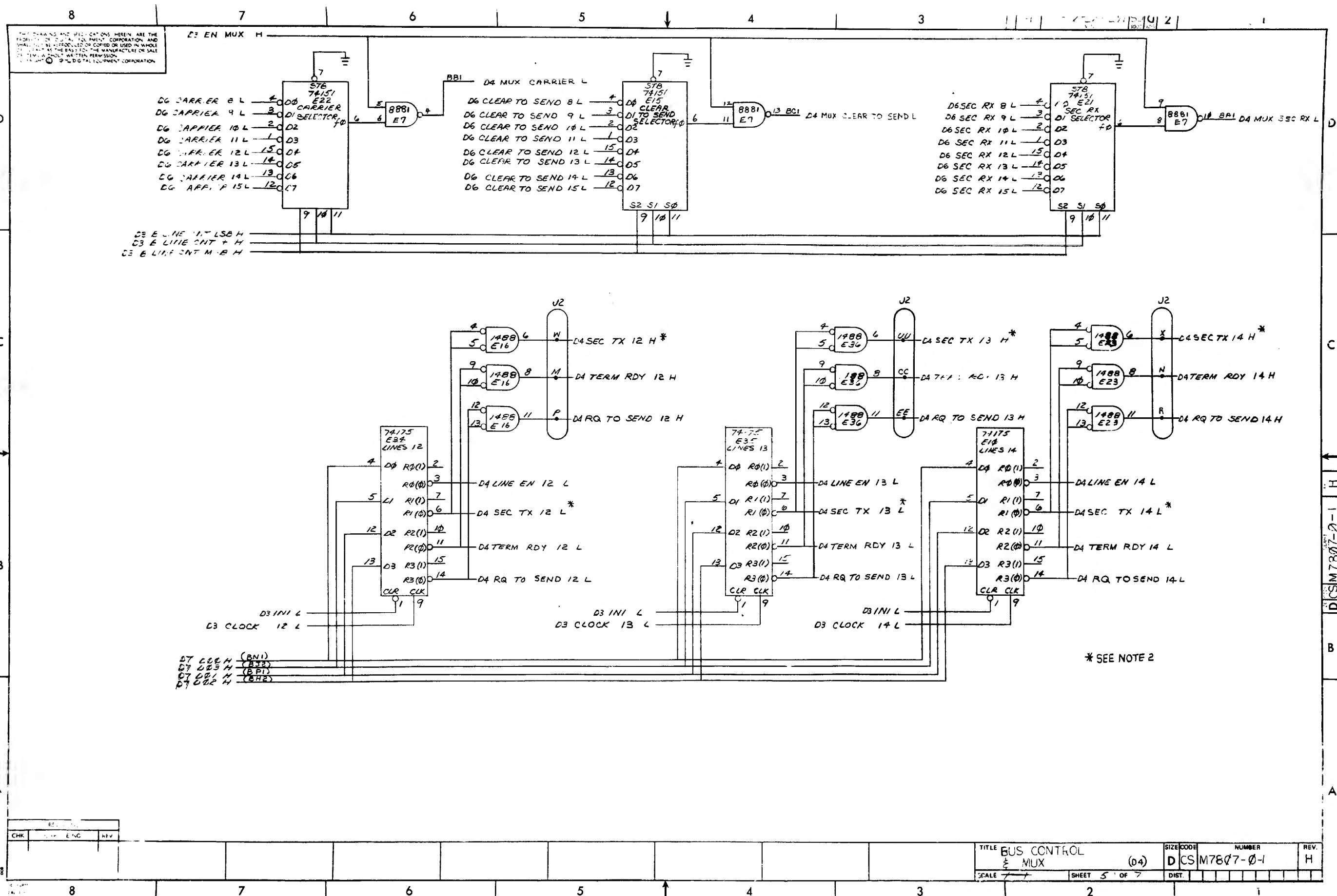
DEC NO.	EIA NO.	DEC NO.	EIA NO.
74151	74151	74151	74151
74175	74175	74175	74175
7442	7442	7442	7442
7440	7440	7440	7440
7440	7440	7440	7440
7440	7440	7440	7440
7440	7440	7440	7440
7440	7440	7440	7440
7440	7440	7440	7440

FIRST USED ON OPTION MODEL

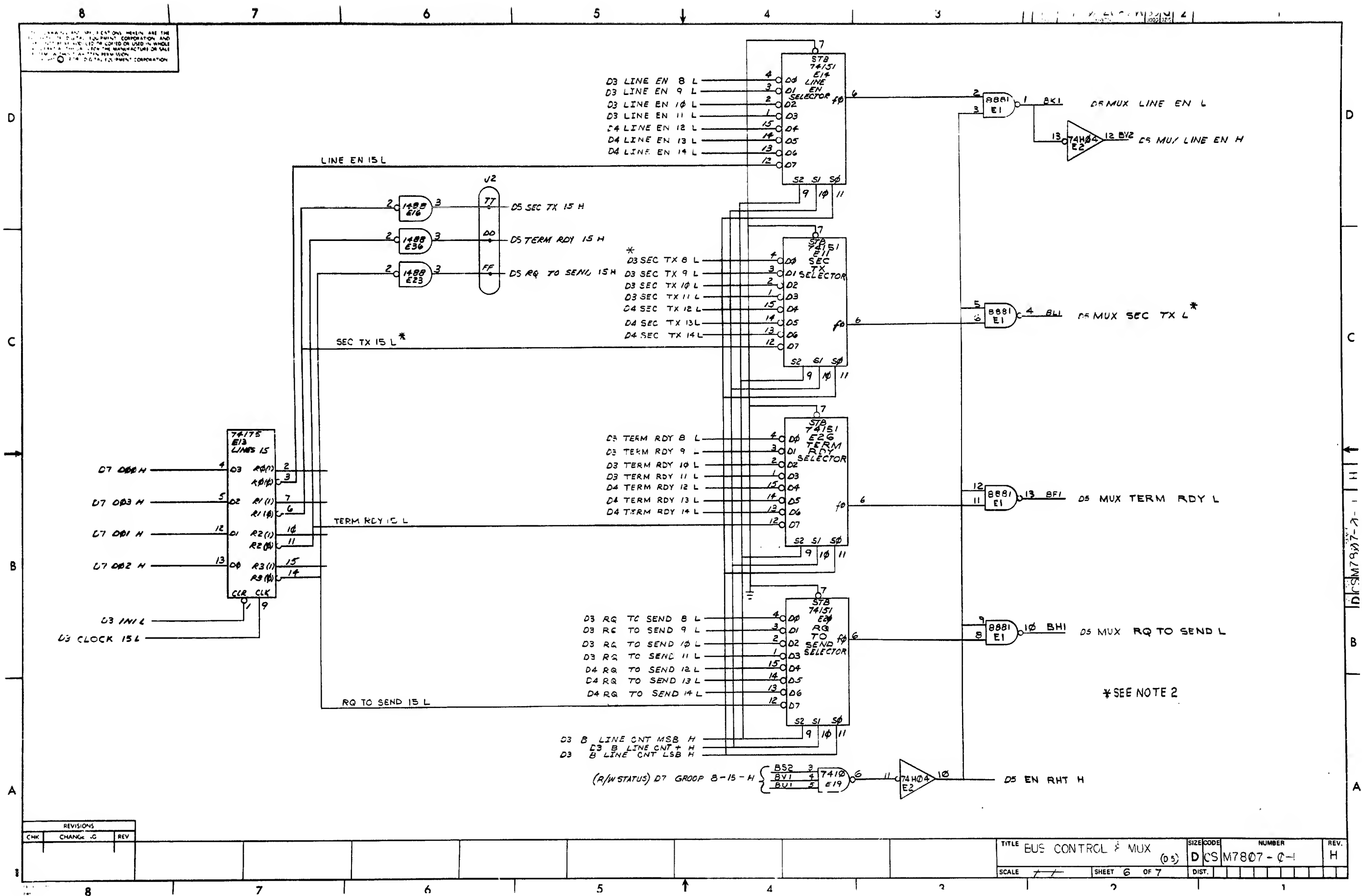
QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST				
1	R38	RES 330 1/4W 5%	1300295	41
2		LEFT LATCH	1209941-03	42
2		RIGHT LATCH	1209941-04	43
1	R24	RES 10K 1/4W 5%	1300479	44
ETCH BOARD REV D				
SEMICONDUCTOR CONVERSION CHART				
TITLE: BUS CONTROL & MUX				
PART NO. DCSM7807-0-1				
SHEET 1 OF 7				



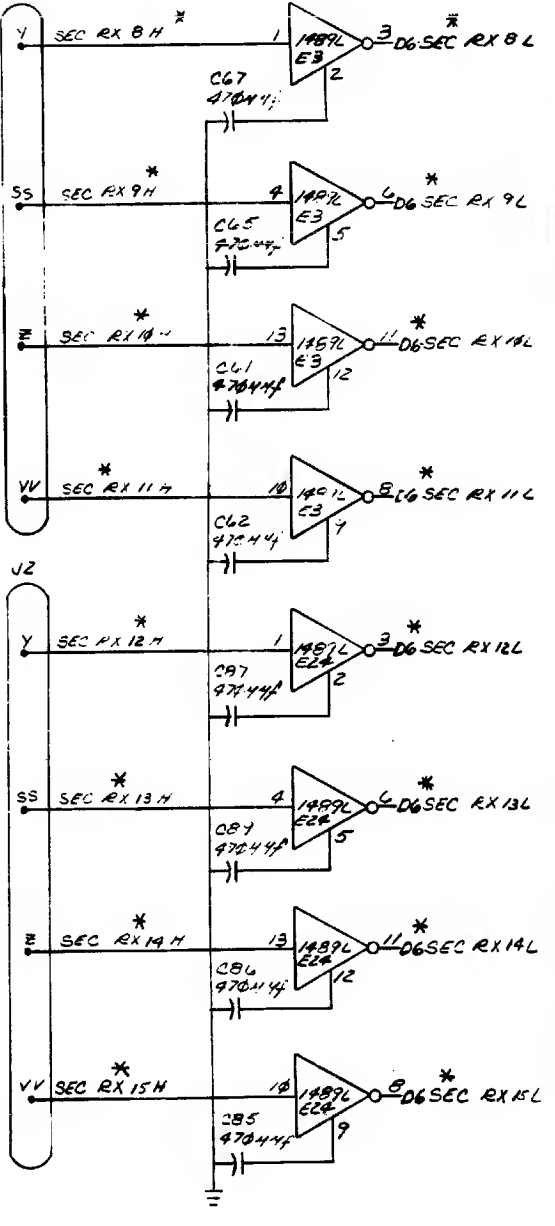
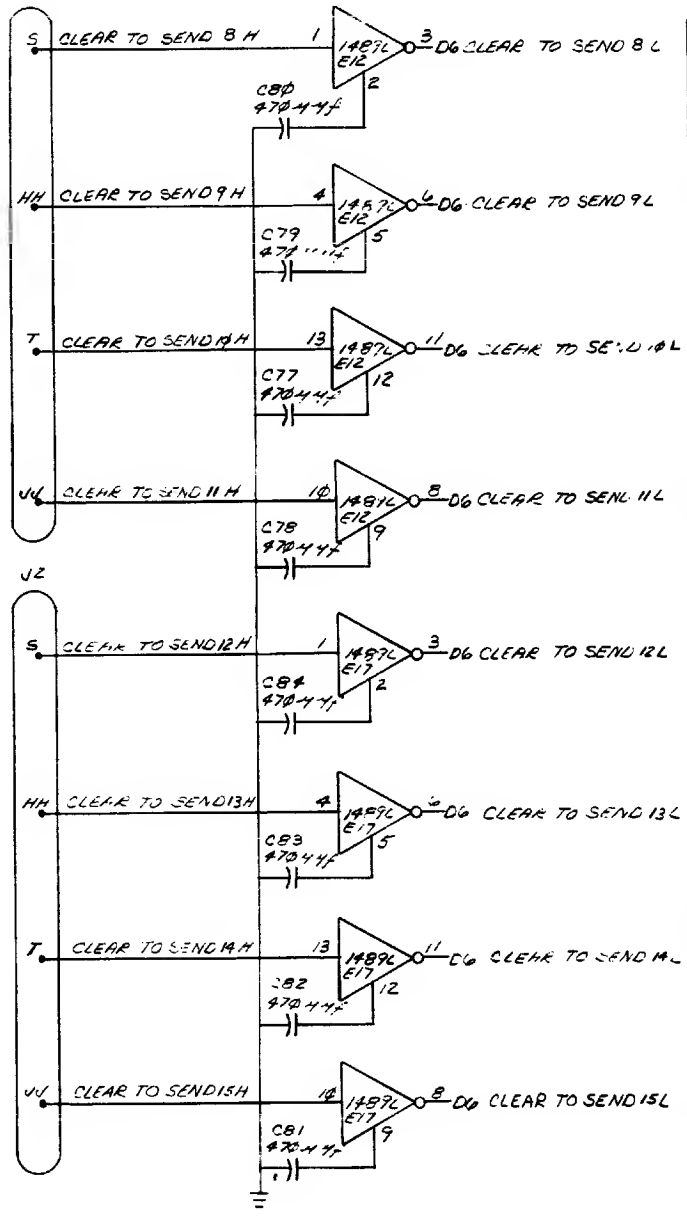
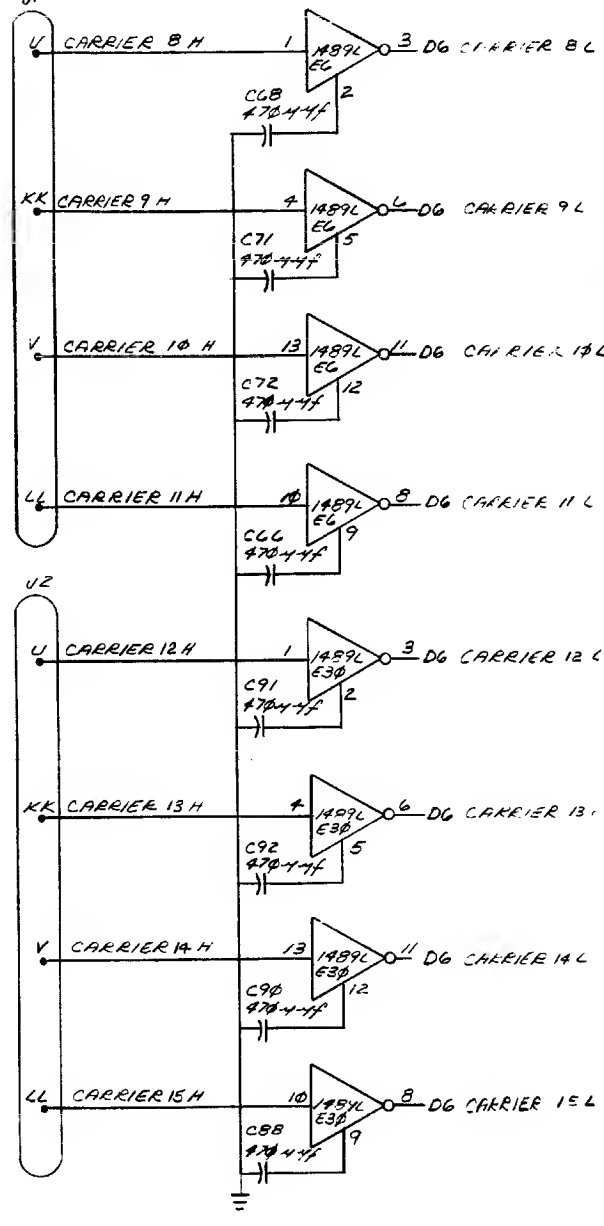
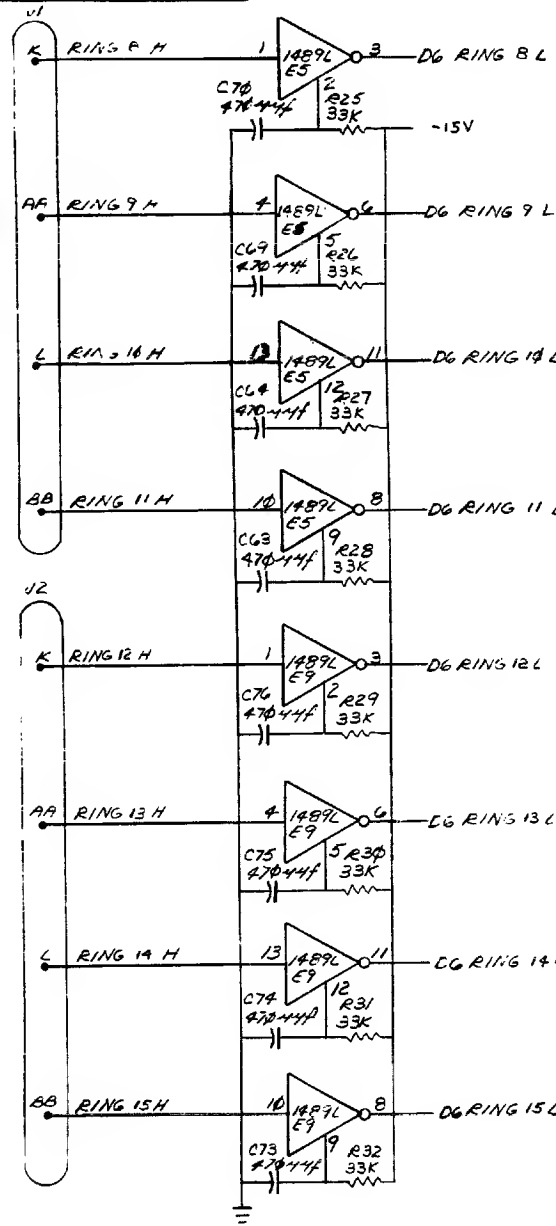




REV. 1			
CHK	DATE	BY	REV.



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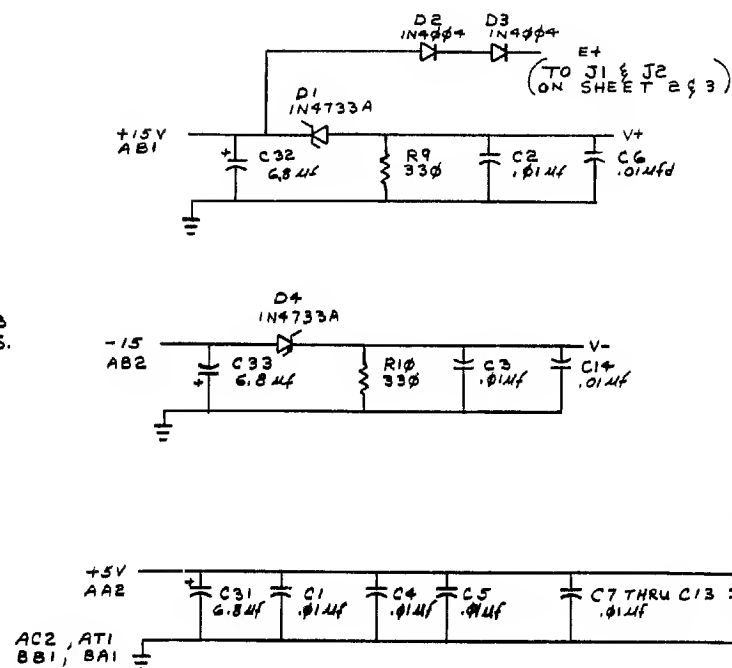
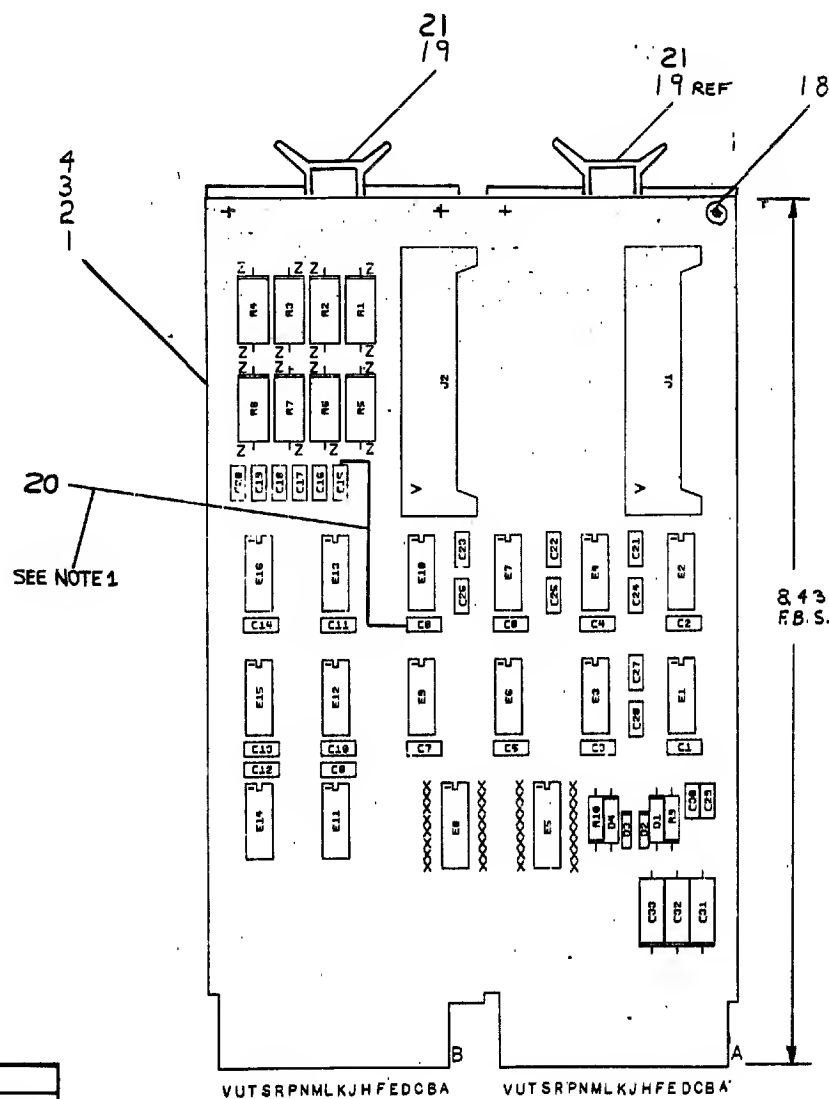


* SEE NOTE 2

REVISIONS		
CHK	CHANGE	REV

TITLE		BUS CONTROL & MUX (D6)	SIZE CODE	NUMBER	REV.
SCALE		7 OF 7	DIST.	DCS M7807-2-1	H

NOTES:
1. THIS WIRE TO BE ADDED ON M5906-YA ONLY.



1488L RECEIVER		
V ⁺	V ⁻	GND
PIN 14	PIN 1	PIN 7

REF	REF		X-Y COORDINATE HOLE LOCATION	K-C-W5000-J-4	1
REF	REF		ASSY/DRILLING HOLE LAYOUT	D-AH-W5000-J-5	2
REF	REF		MODULE ECO HISTORY	D-MH-W5000-J-8	3
1	1		ETCHED CIRCUIT BOARD	9010005	4
16	18	C15-30	CAP. 470 PFD 100V 5% O.W.	1000024	5
14	14	C1-14	CAP. .01 UFD 80V AXIAL CER.	1001810-01	6
3	3	C31-33	CAP. 8.8 UFD 35V 10% S. TANT	1005306	7
2	2	02-3	DIODE 1N4004 1A PIV 400V	1105796	8
2	2	01,04	DIODE 1H4733A 51V ZENER 5% 40V	1100843	9
2	2	E5,E6	SOCKET 16 PIN GLASS	1200836	10
2	2	J1-2	40 PIN BERG CONNECTOR	1200841	11
2	2	R9-10	RES. 330 OHM 1/2W 5% CC	1300296	12
8	8	R1-6	RES. 750 OHM 1W 5% CC	1302385	13
6	6	E6,E8,E11-12,E14-15	I.C. DEC 7404	1909688	14
4	4	E2-3,E7,E18	I.C. DEC 1489L	1810322	15
4	4	E1,E4,E10,E19	I.C. DEC 1489L	1810323	16
4	4		EYELET HANDLE	9008732	17
2	2		FLIP CHIP HANDLE MAGENTA	0008377-8	18
AK	-	SEE NOTE *1	*30 AWG. GREEN WIRE	9105740-55	20

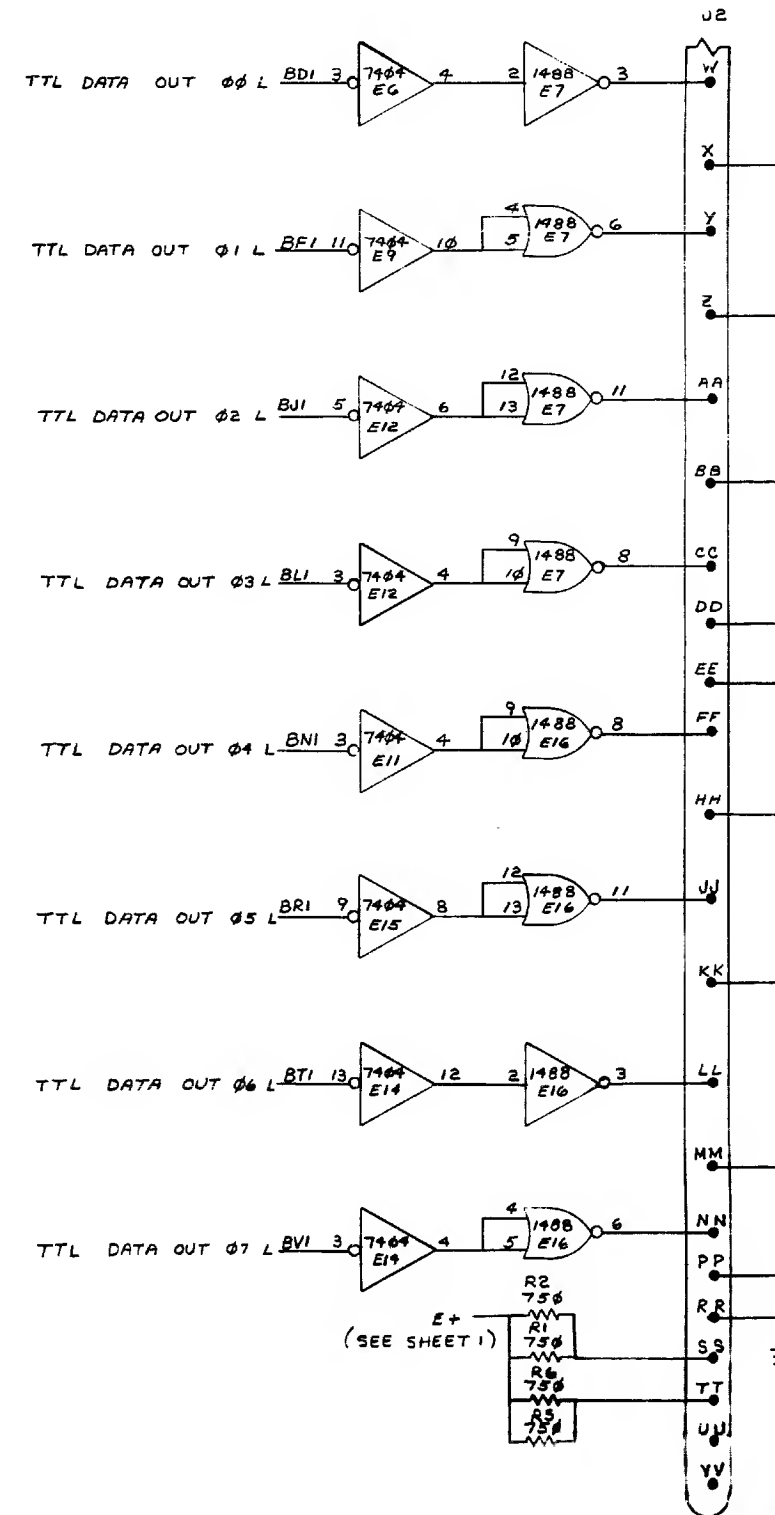
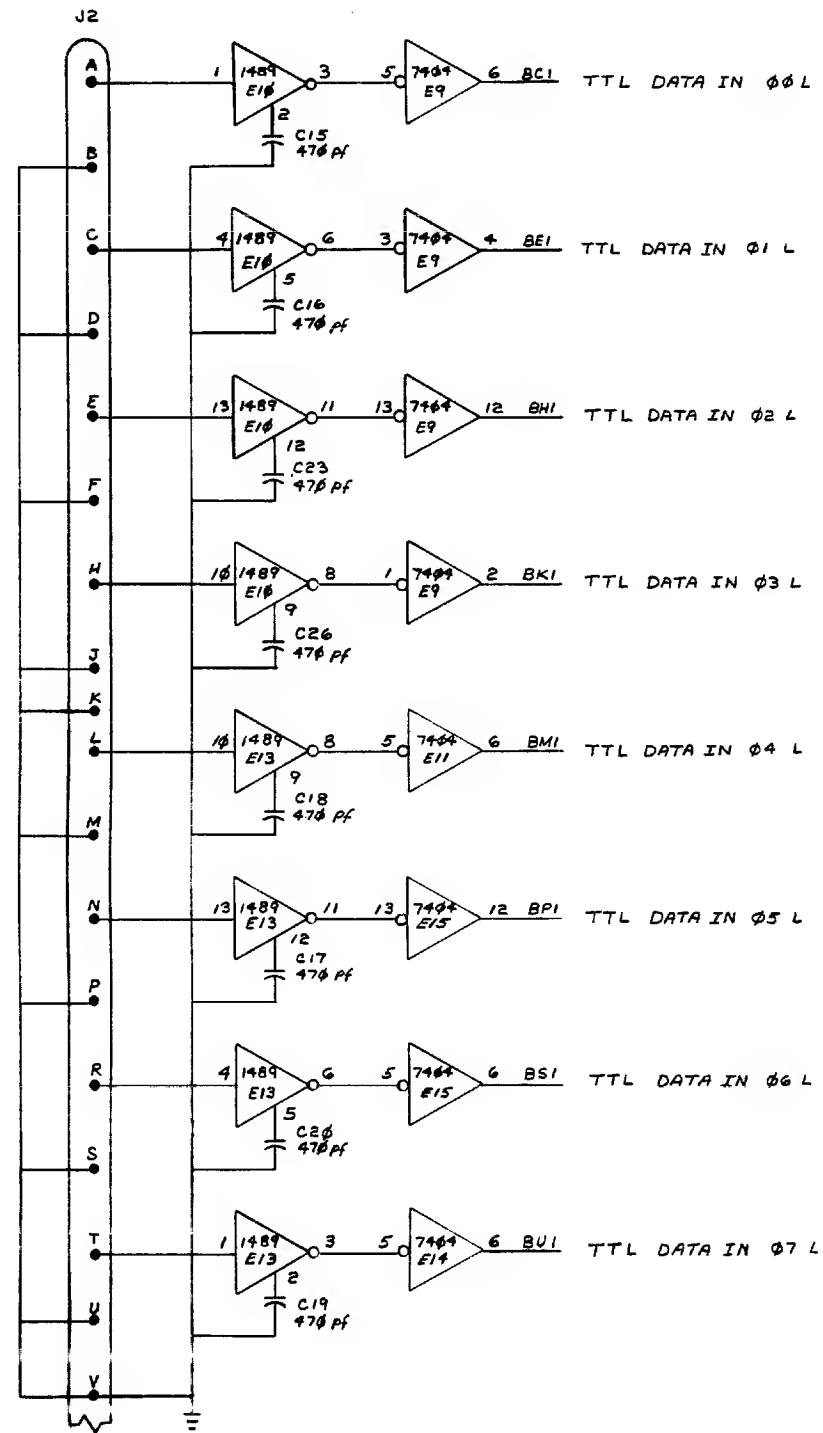
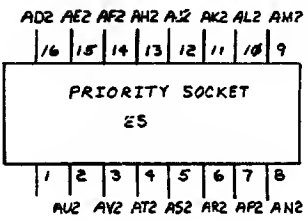
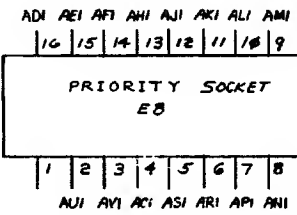
MS906-YA	MS906				
QTY.	QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM

[illegible]

IC TYPE	GND	+ 5V
GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY. EXCEPTIONS ARE STATED ABOVE.		
IC PIN LOCATIONS		

DEC FORM 10
 FEB 1958

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REVISIONS		
CHK	CHANGE NO.	REV

DEC FORM NO
DND 136

8

7

6

5

4

3

2

1

TITLE EIA CONVERTER
AND PRIORITY

SIZE CODE NUMBER
DCSM5906-0-1

REV.
B

DIST.

SCALE

SHEET 2 OF 3

1

8

7

6

5

4

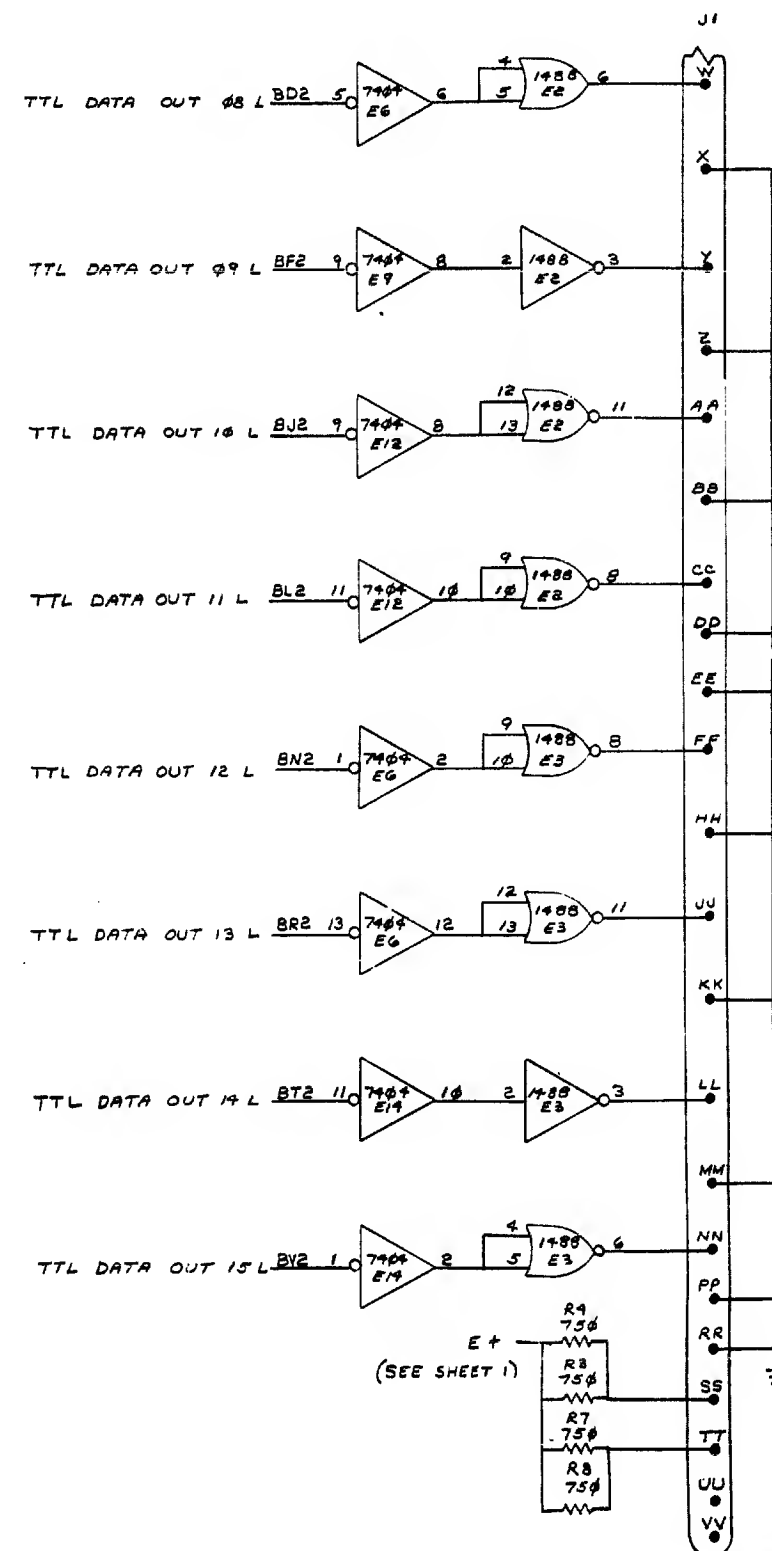
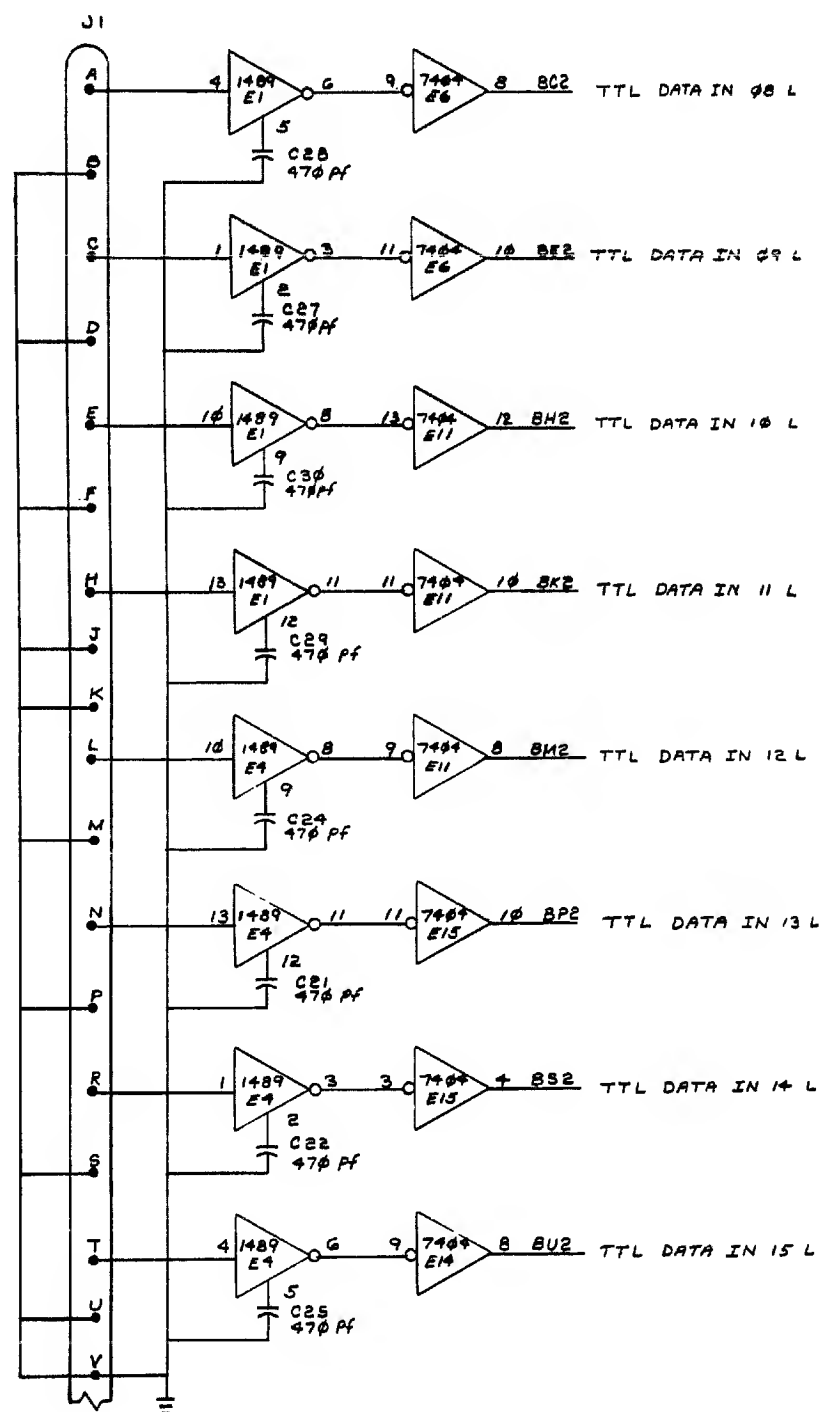
3

B

1-0-9065WSD 2

1

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E +
(SEE SHEET 1)

R4 750
R3 750
R7 750
R8 750

REVISIONS		
CHK	CHANGE NO.	REV.

DEC FORM NO
ORD 132

8

7

6

5

4

3

2

1

TITLE EIA CONVERTER
AND PRIORITY

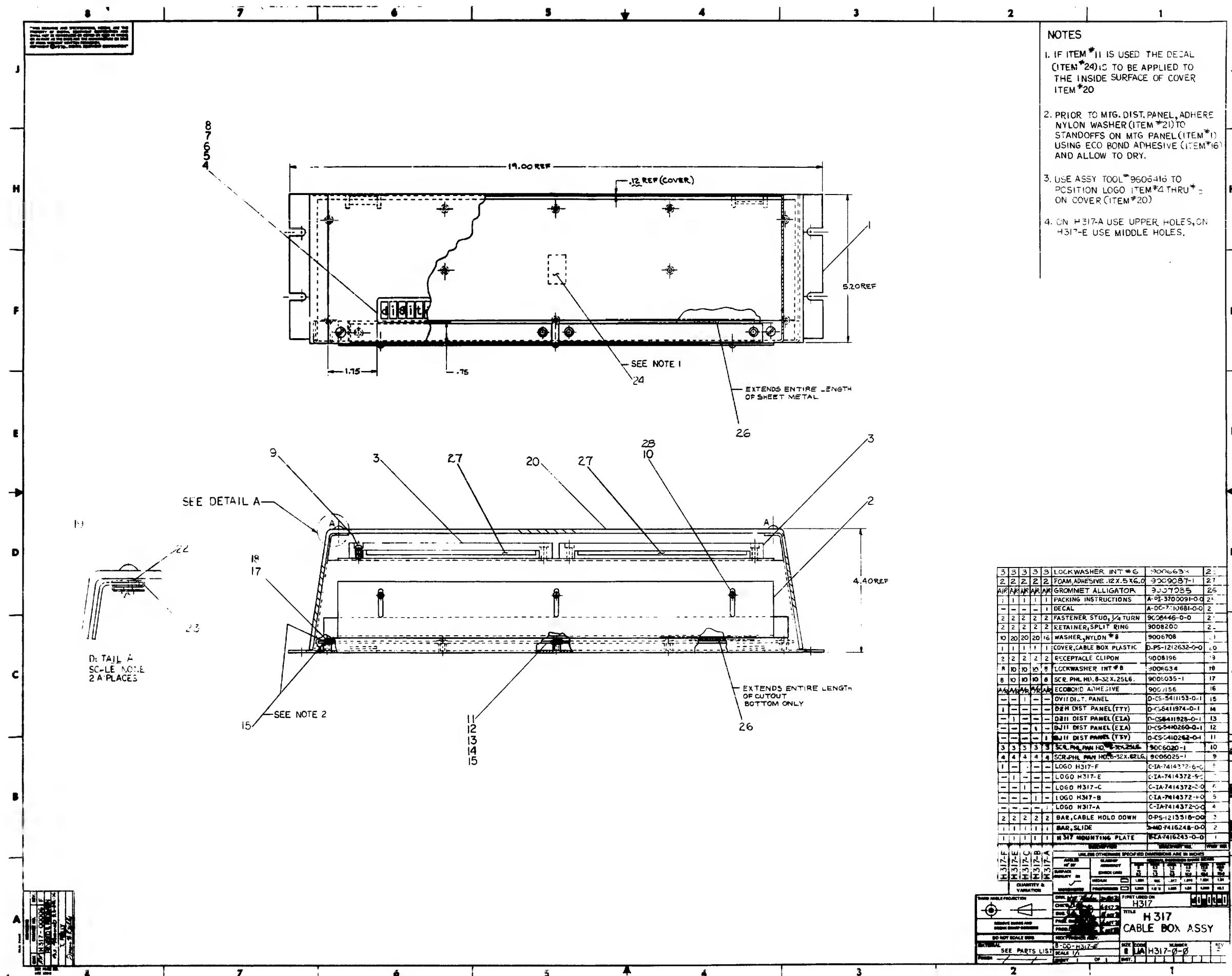
SIZE CODE NUMBER
D CSM5906-0-1

REV. B

SCALE SHEET 3 OF 3

DIST.

MR



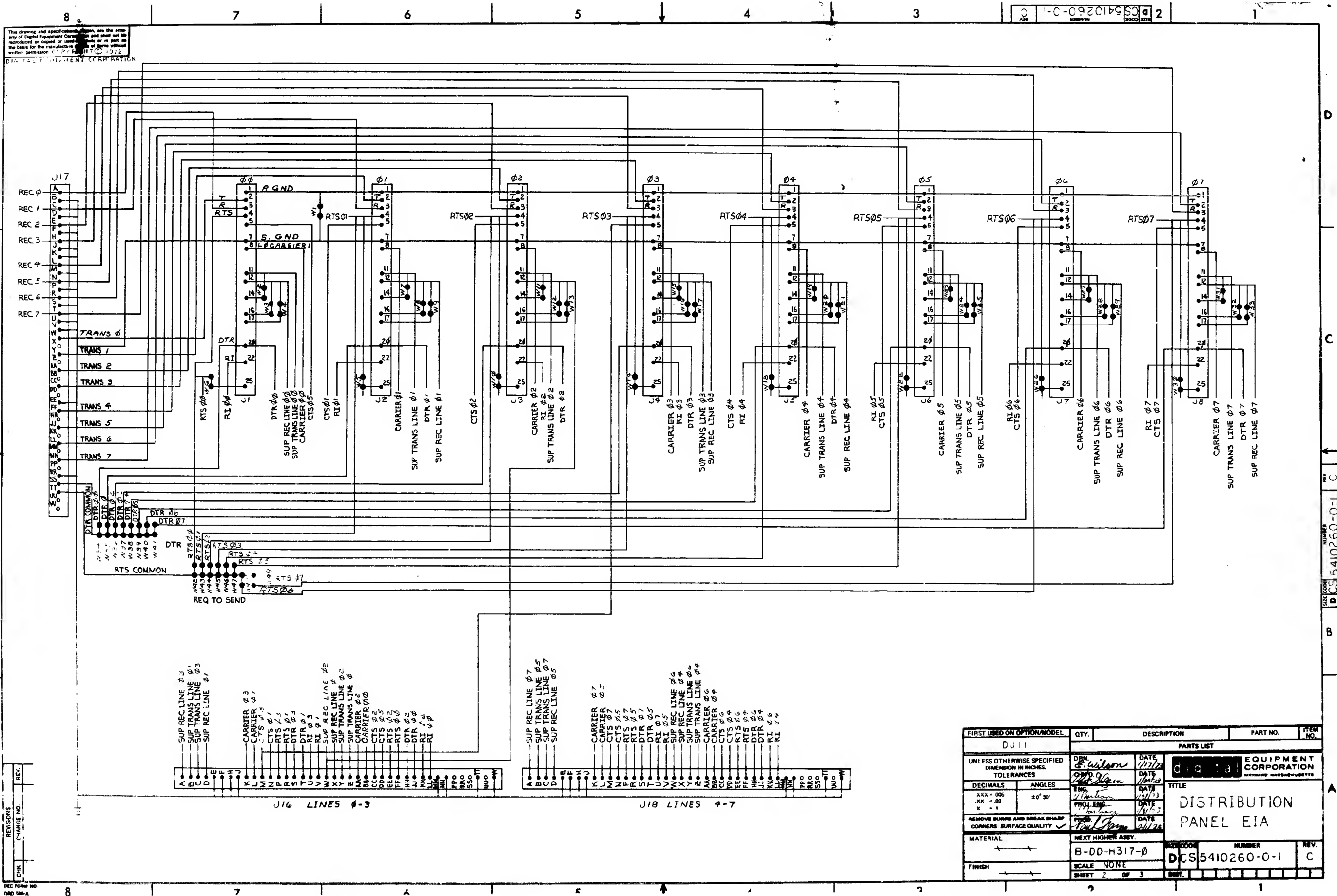
1. JUMPERS W34 THRU W49 AND W83 THRU W98 SHOULD BE OUT WHEN MODEM CONTROL (M7807+M7808) MODULES) IS PROVIDED. THESE JUMPERS SHOULD BE IN IF NO MODEM CONTROL IS PROVIDED.
2. JUMPERS W5, W6, W10, W14, W18, W22, W26, W30, W51, W55, W59, W63, W67, W71, W75, W79 SHOULD BE OUT EXCEPT FOR THE FOLLOWING & THESE JUMPERS SHOULD BE IN IF CONTROL OF 103E, 113B MAKE BUSY LEAD BY RTS IS DESIRED. NOTE THAT ASSERTION OF RTS MAKES MODEM AND LINE BUSY. (UNAVAILABLE FOR CALLS)



EVEN BOWS 12.		DWN <i>Went</i> DATE <i>1/22</i> CHG <i>Went</i> DATE <i>1/22</i> ENG <i>Went</i> DATE <i>1/23</i> WIP <i>Went</i> DATE <i>1/23</i> REP <i>Went</i> DATE <i>1/23</i>		digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
		TITLE DJ-II DISTRIBUTION PANEL (EIA)		
		NEXT HIGHER ASSY B-DD-H317- <i>0</i>		
DEC NO.	EIA NO.	SCALE <i>NONE</i> SHEET <i>1</i> OF <i>3</i>	NUMBER DICS 5410260-0-1	
OR CONVERSION CHART				

A			
	IC TYPE	GND	+5V
GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY. EXCEPTIONS ARE STATED ABOVE			
IC PIN LOCATIONS			

FIRST USED ON OPTION MODEL		PARTS LIST									
H317		ETCH BOARD REV		C							
V. BASTIANI C. B. 29 oct - 75		5410260-00001		C		REV		REV		REV	
CHANGED NO.		CHANGED NO.		CHANGED NO.		CHANGED NO.		CHANGED NO.		CHANGED NO.	
REVISIONS		REVISIONS		REVISIONS		REVISIONS		REVISIONS		REVISIONS	
DEC NO.		EIA NO.		DEC NO.		EIA NO.		DEC NO.		EIA NO.	
SEMICONDUCTOR CONVERSION CHART											
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<div style="display: flex; justify-content: space-between;"> <div> <p>DRN <i>11/2/72</i></p> <p>DATE <i>11/2/72</i></p> <p>DRN <i>11/2/72</i></p> <p>DATE <i>11/2/72</i></p> <p>DRN <i>11/2/72</i></p> <p>DATE <i>11/2/72</i></p> <p>DRN <i>11/2/72</i></p> <p>DATE <i>11/2/72</i></p></div></div>											



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DCS 5410260-0-1

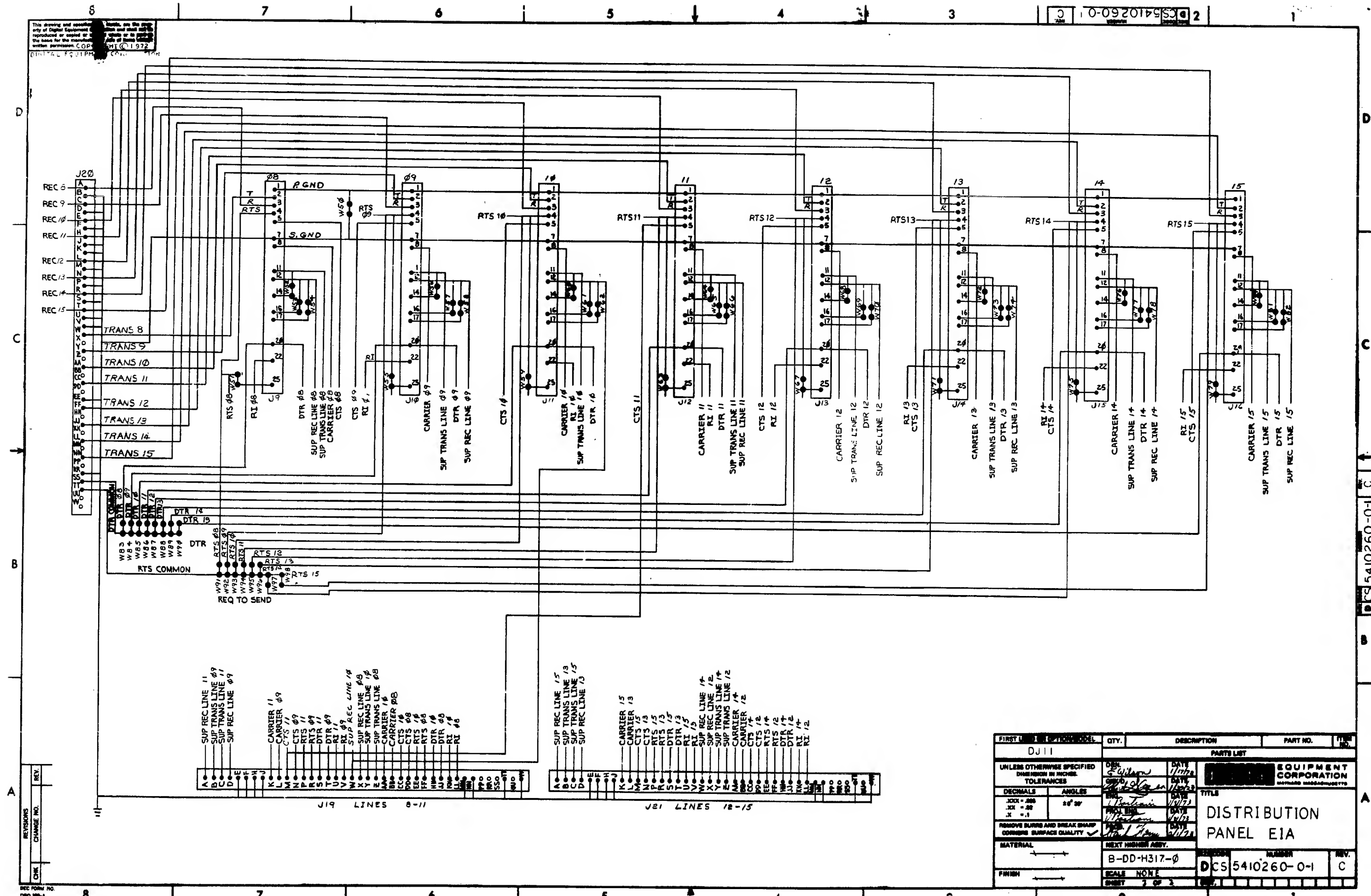
REV.	CHG.	NO.
1		

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
DJ11				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES	DBN G. Wilson DATE 11/7/72	DATE 11/7/72	DATE 11/7/72	DATE 11/7/72
DECIMALS	ANGLES	DATE 11/7/72	DATE 11/7/72	DATE 11/7/72
XXX - 000	±0° 30'	DATE 11/7/72	DATE 11/7/72	DATE 11/7/72
XX - 00		DATE 11/7/72	DATE 11/7/72	DATE 11/7/72
X - 1		DATE 11/7/72	DATE 11/7/72	DATE 11/7/72
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		DATE 11/7/72	DATE 11/7/72	DATE 11/7/72
MATERIAL	NEXT HIGHER ASSY.	DATE 11/7/72	DATE 11/7/72	DATE 11/7/72
FINISH	B-DD-H317-0	DATE 11/7/72	DATE 11/7/72	DATE 11/7/72
	SCALE NONE	DATE 11/7/72	DATE 11/7/72	DATE 11/7/72
	SHEET 2 OF 3	DATE 11/7/72	DATE 11/7/72	DATE 11/7/72

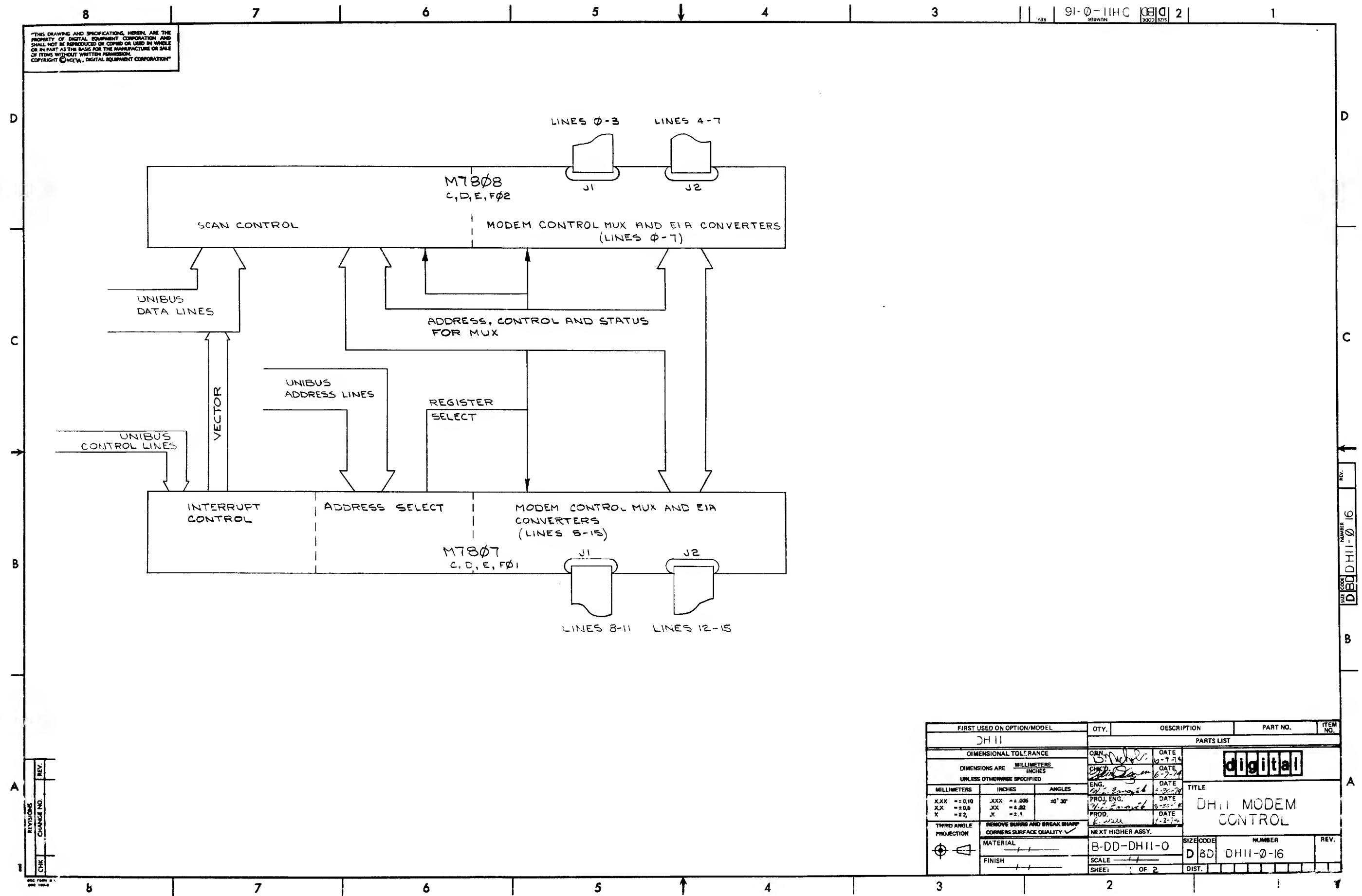
DIGITAL EQUIPMENT CORPORATION

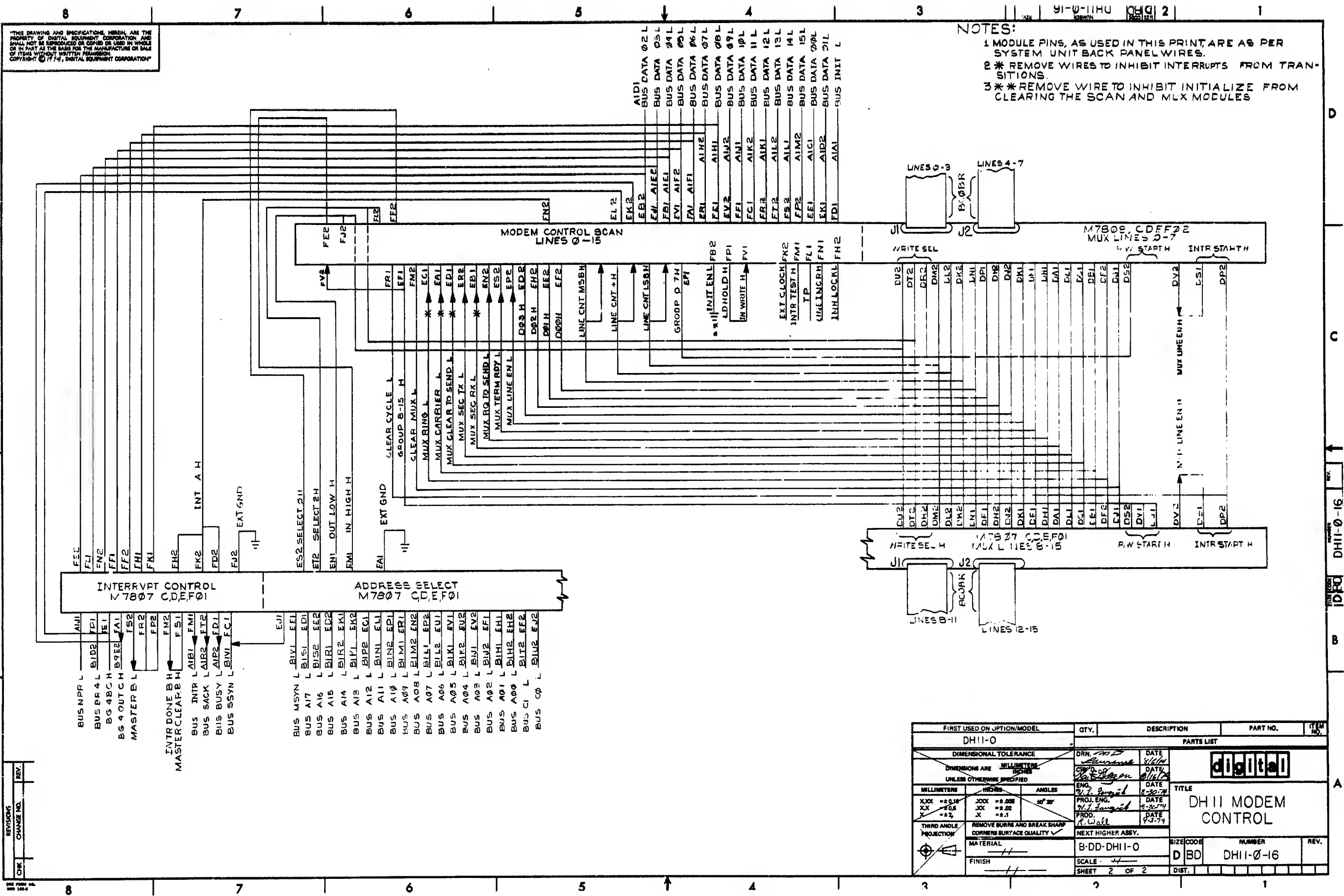
TITLE
DISTRIBUTION
PANEL EIA

DCS 5410260-0-1



FIRST I.D. POSITION MODEL		QTY.	DESCRIPTION	PART NO.	REV.
DJI		PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES		DEN 5410260-01 QTY 1 ENG 1 FAC 1 PAC 1 PAC 1 PAC 1	DATE 1/1/72 DATE 1/1/72 DATE 1/1/72 DATE 1/1/72 DATE 1/1/72 DATE 1/1/72	EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS	
DECIMALS	ANGLES	TITLE			
.XXX ± .006 .XX ± .02 .X ± .1	± 0° 30'	DISTRIBUTION PANEL EIA			
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓		NEXT HIGHER ASBY.			
MATERIAL		B-DD-H317-Ø		REV.	REV.
		DCS 5410260-0-1		C	
FINISH		SCALE NONE			
		SHEET 2 OF 2			





NOTES:
1 MODULE PINS, AS USED IN THIS PRINT, ARE AS PER SYSTEM UNIT BACK PANEL WIRES.
2 * REMOVE WIRES TO INHIBIT INTERRUPTS FROM TRANSITIONS.
3 * REMOVE WIRE TO INHIBIT INITIALIZE FROM CLEARING THE SCAN AND MUX MODULES

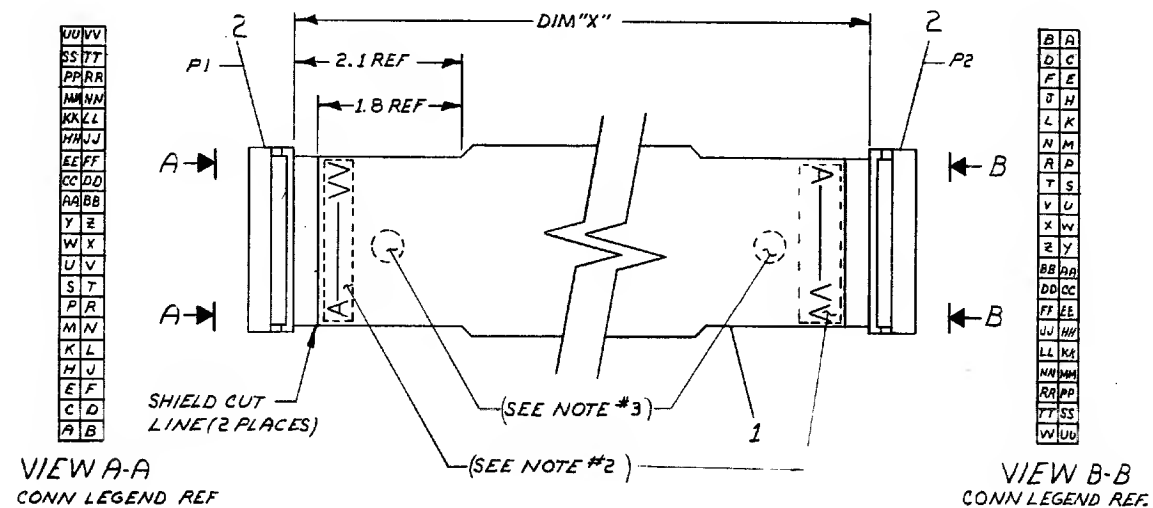
FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
DH11-0					
DIMENSIONAL TOLERANCE		DRN. <i>[Signature]</i>	DATE <i>8/1/74</i>	digital	
DIMENSIONS ARE MILLIMETERS UNLESS OTHERWISE SPECIFIED		ENG. <i>[Signature]</i>	DATE <i>8/1/74</i>		
THIRD ANGLE PROJECTION		PROJ. ENG. <i>[Signature]</i>	DATE <i>8-20-74</i>		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		PROD. <i>[Signature]</i>	DATE <i>9-3-74</i>		
MATERIAL		NEXT HIGHER ASSY.		TITLE	
FINISH		B-DD-DH11-0		DH11 MODEM CONTROL	
		SCALE		SIZE CODE	
		SHEET 2 OF 2		D BD	
				NUMBER	
				DH11-0-16	
				REV.	

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WIRE TABLE			
FROM	TO	FROM	TO
P1-A	P2-VV	P1-Y	P2-X
P1-B	P2-UU	P1-Z	P2-W
P1-C	P2-TT	P1-AA	P2-V
P1-D	P2-SS	P1-BB	P2-U
P1-E	P2-RR	P1-CC	P2-T
P1-F	P2-QQ	P1-DD	P2-S
P1-H	P2-NN	P1-EE	P2-R
P1-J	P2-MM	P1-FF	P2-P
P1-K	P2-LL	P1-HH	P2-N
P1-L	P2-KK	P1-JJ	P2-M
P1-M	P2-JJ	P1-KK	P2-L
P1-N	P2-II	P1-LL	P2-K
P1-P	P2-FF	P1-MM	P2-J
P1-R	P2-EE	P1-NN	P2-H
P1-S	P2-DD	P1-PP	P2-F
P1-T	P2-CC	P1-RR	P2-E
P1-U	P2-BB	P1-SS	P2-D
P1-V	P2-AA	P1-TT	P2-C
P1-W	P2-ZZ	P1-UU	P2-B
P1-X	P2-Y	P1-VV	P2-A

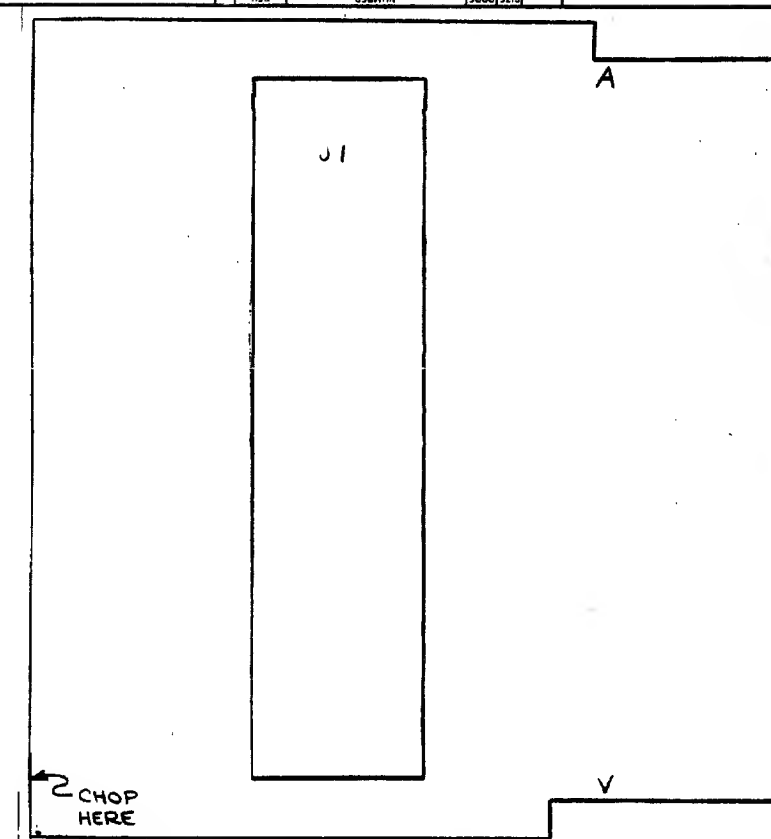
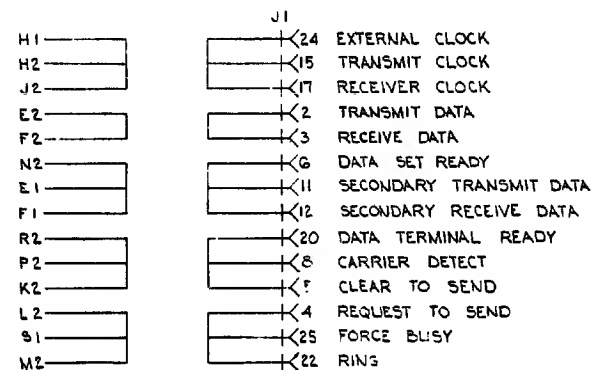
LEGEND		
NUMBER	DIM "X"	PRECUT LENGTH
BC08R-01	1.00 FT.	1.00 FT. 1.5 IN ± 1.00 IN
BC08R-02	2.00 FT.	2.00 FT. 1.5 IN ± 1.00 IN
BC08R-03	3.00 FT.	3.00 FT. 1.5 IN ± 1.00 IN
BC08R-04	4.00 FT.	4.00 FT. 1.5 IN ± 1.00 IN
BC08R-05	5.00 FT.	5.00 FT. 1.5 IN ± 1.00 IN
BC08R-06	6.00 FT.	6.00 FT. 1.5 IN ± 2.00 IN
BC08R-07	7.00 FT.	7.00 FT. 1.5 IN ± 2.00 IN
BC08R-08	8.00 FT.	8.00 FT. 1.5 IN ± 2.00 IN
BC08R-09	9.00 FT.	9.00 FT. 1.5 IN ± 2.00 IN
BC08R-10	10.00 FT.	10.00 FT. 1.5 IN ± 2.00 IN
BC08R-11	11.00 FT.	11.00 FT. 1.5 IN ± 3.00 IN
BC08R-12	12.00 FT.	12.00 FT. 1.5 IN ± 3.00 IN
BC08R-13	13.00 FT.	13.00 FT. 1.5 IN ± 3.00 IN
BC08R-14	14.00 FT.	14.00 FT. 1.5 IN ± 3.00 IN
BC08R-15	15.00 FT.	15.00 FT. 1.5 IN ± 3.00 IN
BC08R-16	16.00 FT.	16.00 FT. 1.5 IN ± 3.00 IN
BC08R-17	17.00 FT.	17.00 FT. 1.5 IN ± 3.00 IN
BC08R-18	18.00 FT.	18.00 FT. 1.5 IN ± 3.00 IN
BC08R-19	19.00 FT.	19.00 FT. 1.5 IN ± 3.00 IN
BC08R-20	20.00 FT.	20.00 FT. 1.5 IN ± 3.00 IN
BC08R-25	25.00 FT.	25.00 FT. 1.5 IN ± 3.00 IN
BC08R-30	30.00 FT.	30.00 FT. 1.5 IN ± 3.00 FT
BC08R-35	35.00 FT.	35.00 FT. 1.5 IN ± 3.00 FT
BC08R-50	50.00 FT.	50.00 FT. 1.5 IN ± 1.00 FT
BC08R-60	60.00 FT.	60.00 FT. 1.5 IN ± 1.20 FT
BC08R-75	75.00 FT.	75.00 FT. 1.5 IN ± 1.50 FT
BC08R-90	90.00 FT.	90.00 FT. 1.5 IN ± 2.00 FT
BC08R-A3	130.00 FT.	130.00 FT. 1.5 IN ± 2.00 FT
BC08R-A6	160.00 FT.	160.00 FT. 1.5 IN ± 2.00 FT

1. ASSEMBLE THIS CABLE PER PROCESS SPEC #7606485-0-0.
2. CONNECTOR LEGEND IDENTIFICATION TO BE PLACED ON SHIELD SIDE OF CABLE IN THIS AREA AS SHOWN.
3. INSPECTION & TEST STAMPS TO BE PLACED AT EACH END OF THE CABLE ASSY.
4. STRIP LENGTH SHOULD BE .62 ± 4/32.



2	CONNECTOR, 40 SOCKET	1211206	2
1	WIRE CABLE, 40 COND. FLAT W/SHIELD	1700004	1
DESCRIPTION			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES			
ANGLES ±0° 30'	CLASS OF ACCURACY (CHECK ONE)	NOMINAL DIMENSION RANGE INCHES	
SURFACE QUALITY IN	MEDIUM	OVER 0 TO 0.2	OVER 0.2 TO 1.2
MICROINCHES	PREFERRED	OVER 1.2 TO 4.0	OVER 4.0 TO 12.0
THIRD ANGLE PROJECTION	DRNO. FONTAINE 8-28-70	FIRST USED ON	
REMOVE BURRS AND BREAK SHARP CORNERS	CHICK FLEMING 8-28-70	TITLE	
DO NOT SCALE DWG	ENG. P. GARDNER 9-3-70	BC08R	
MATERIAL	PROD. DONALL 9-4-70	10 CABLE	
FINISH	NEXT HIGHER ASSY.	SIZE CODE NUMBER REV.	
	SCALE	D UA BC08R-0-0 M	
	SHEET OF 1	DST.	

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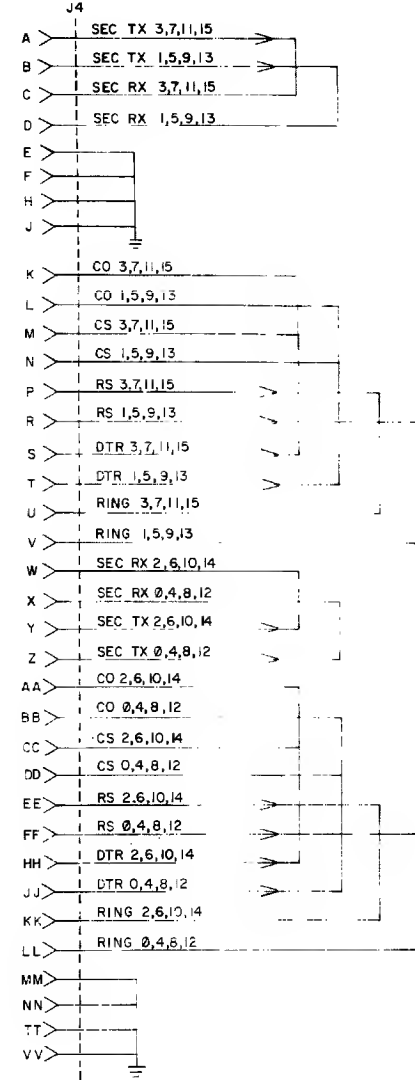
		BYSET FROM SHW	0004711	6
1	J1	CORN. CINC DB-255-	1210217	5
1		ETCHED CIRCUIT	501002C	4
		MODULE NOO HISTO.	B-WH-H315-Q-4	3
		ASSY/DRILLING HOLE	G-AH-H315-Q-5	2
		X-Y COORDINATE HOLE LOCATION	K-CO-H315-Q-4	1
QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	
		PARTS LIST		
QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITS NO.
PARTS LIST				
ETCH BOARD REV	A	B		
DRL Rger DUMICKT	DATE 3-5-78	EQUIPMENT CORPORATION METHUEN MASSACHUSETTS	TITLE MODEM TEST CONNECTOR	REV. A
CH'D Shirley CP	DATE 3-16-78			
DESIGNED P.E.	DATE 3-2-78			
FIRST DRG E. J. Jan	DATE 3-17-78			
PROD'G 3-24-78	DATE 3-24-78			
NEXT HIGHER ASSY				
DEC NO.	EIA NO.	SCALE	SIZE CODE DCS	NUMBER H315-Q-I
CONVERSION CHART		SHEET OF	DWT.	

CHK	H315 0001	CHANGE NO.	REV
DEVISIONS			

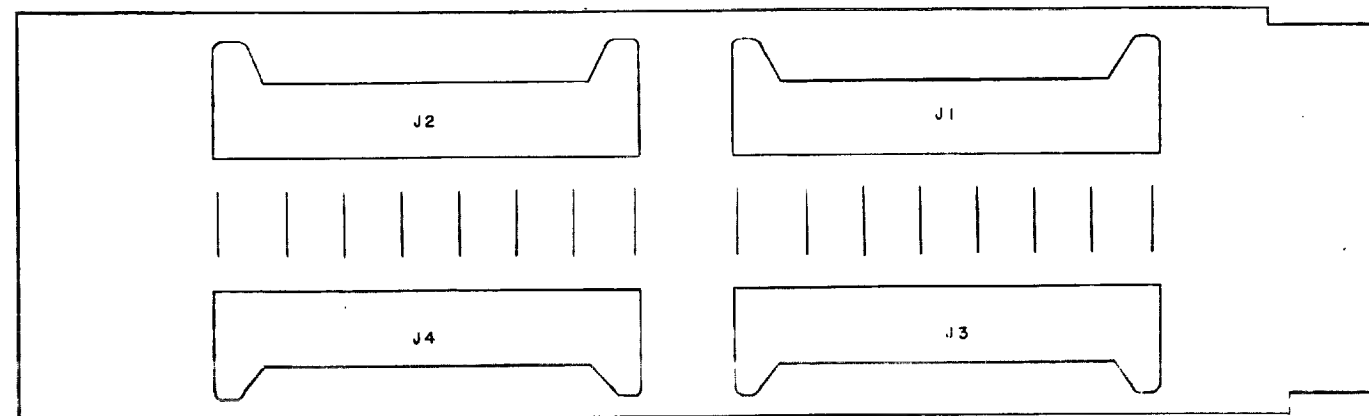
		ETCH BOARD REV	
DEC NO.	EIA NO.	DEC NO.	EIA NO.

SEMICONDUCTOR CONVERSION CHART

DRN. <i>Royer</i>	DATE <i>3-3-72</i>	 DIGITAL EQUIPMENT CORPORATION MATTHEW MASSACHUSETTS
CHD. <i>Flumcke</i>	DATE <i>3-14-72</i>	
<i>W.E.D.</i>	DATE <i>3-17-72</i>	
<i>W.E.D.</i>	DATE <i>3-17-72</i>	
<i>W.E.D.</i>	DATE <i>3-17-72</i>	
PROB. <i>John</i>	DATE <i>3-17-72</i>	TITLE
<i>John</i>	DATE <i>3-17-72</i>	MODEM TEST CONNECTOR
NEXT HIGHER ASSY		
SCALE	SHEET <i>1</i> OF <i>1</i>	SIZE CODE DCS
		NUMBER H315-0-1
		REV. A



PINS PP,RR,SS,UU ARE NOT USED ON ALL CONNECTORS

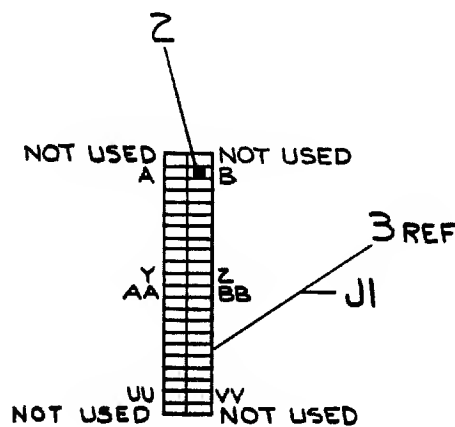
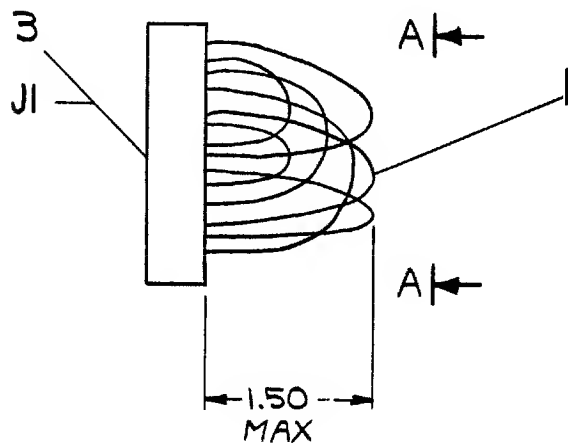
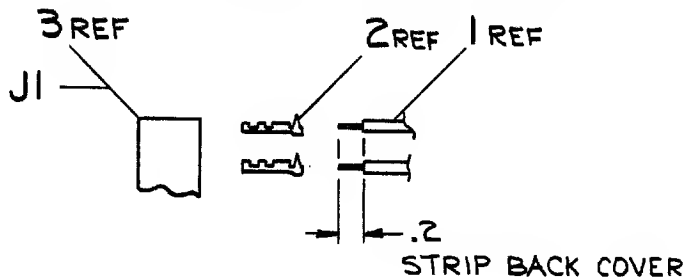


4	- CONN. 401-100-0000		1209901	5
	STANDARD CIRCUIT BOARD		5009746	4
	MODULE BCU HISTORY		R-BB-HB61-0-0-6	3
	ASSY/DRILLING HOLE LAYOUT		J-AH-HB61-0-0-5	2
	X-Y COORDINATE HOLE LOCATION		K-CO-HB61-0-0-4	1
REF. DESIGNATION	DESCRIPTION		DBC PART NO.	REV.
PARTS LIST				
TITLE				
TRANSISTOR & DIODE CONVERSION CHART			DM 11-BB TEST CONNECTOR	
DATE	DEC	EMA	DEC	EMA
1/2/74				
DATE	DEC	EMA	DEC	EMA
1-1-74				
DATE	DEC	EMA	DEC	EMA
11-26-74				
DATE	DEC	EMA	DEC	EMA
11-28-74				
EQUIPMENT CORPORATION			REV. 1	CS
MAYNARD, MARCHAND & SONS			REVISION	H861-0-1
PRINTED CIRCUIT REV.			C	

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DO NOT SCALE DRAWING
WIRE TABLE

ITEM NO	DESCRIPTION		FROM		TO	
	AWG	COLOR	CONN	WITH	CONN	WITH
1	22	BLK	J1 - A	Z	J1 - W	Z
			J1 - C		J1 - Y	
			J1 - E		J1 - AA	
			J1 - H		J1 - CC	
			J1 - L		J1 - FF	
			J1 - N		J1 - JJ	
			J1 - R		J1 - LL	
1	22	BLK	J1 - T	Z	J1 - NN	Z



VIEW A-A
SCALE: NONE

1	HOUSING, SOCKET	1210918-15	3
16	SOCKET, CRIMP	1210089-06	2
A/R	WIRE #22 AWG (BLK)	9107350-00	1

FIRST USED ON OPTION/MODEL M5906	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES				
TOLERANCES				
DECIMALS	ANGLES			
.xxx = .005	±0° 30'			
.xx = .02				
.x = .1				
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY V				
MATERIAL SEE PARTS LIST				
FINISH				
NEXT HIGHER ASSY.				
SCALE				
SHEET 1 OF 1				
DIST.				
SIZE CODE C UA				
NUMBER H8611-0-0				
REV.				

digital EQUIPMENT CORPORATION
WAYNARD, MASSACHUSETTS

TITLE
CONN, DATA
TURN AROUND

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION

DATE Aug. 6, 1975

TITLE Installation of Additional DH11 Clocks

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE
—	ORIGINATED	DH11-00010	J. MONAMARA	22 OCT 75	—	—

ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE Installation of Additional DH11 Clocks

I. Scope:

This procedure outlines the correct method for installation of clocks appropriate to baud rates not normally supplied by the M4540 clock in the DH11. These additional clocks are referred to as "external clocks". Up to two external clocks, designated as "External A" and "External B" may be installed in a DH11. Clock pulse width must exceed 3 usec.

II. Procedure:

Install the appropriate module in the appropriate slot in accordance with the table below:

Baud rate for External A is 40-110 baud: Place M401-YA in B#9.
Baud rate for External A is 312-8000 baud: Place M4050-YA in B#9.

Baud rate for External B is 40-110 baud: Place M401-YA in B#6.
Baud rate for External B is 312-8000 baud: Place M4050-YA in B#6.

Remove grounds at F08K2 and F08R2 by doing the following:

Delete E08T1 - F08C2 (level 2)
F08K2 - F08R2 (level 2)
F08T1 - F08V1 (level 2)
F08C2 - F08K2 (level 1)
F08R2 - F08T1 (level 1)

Add F08C2 - F08T1 (level 1)
E08T1 - F08C2 (level 2)
F08T1 - F08V1 (level 2)

Install a backplane wire from E#9E2 to F#9K2. (Ext A Baud H)
Install a backplane wire from B#6E2 to F#6R2. (Ext B Baud H)

If the module that has been installed in a slot is an M401-YA, install a backplane wire from J2 to K2 and from K2 to T1. This provides the necessary enable. In addition, install a backplane wire from N2 to P2. This selects the timing range.

III. Adjustments:

The M4050-YA is crystal controlled, with the crystal selected to operate at a frequency 16 times the desired baud rate. Referring to the M4050-YA or M4050 schematic cut the W jumpers as indicated. No further adjustments are necessary.

The M401-YA is an RC controlled oscillator, with the operating frequency selected to be 16 times the desired baud rate. Adjust R8 potentiometer to obtain the desired frequency.

ENG *[Signature]* 9-3-75 APPD *[Signature]* 9-5-75 SIZE A CODE SP NUMBER DH11-#-17 REV —

DEC 16-13027-1075-41971
DRA 107

Sheet 1 of 3

DEC FORM NO DEC 16-13011-1022-41370
DRA 106

SHEET 2 OF 3

ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE Installation of Additional DH11 Clocks

IV. Parts Substitutions:

An M401-YA may be created from an M401 by replacing 82 mmf capacitor C2 with a 0.01 mf disc ceramic (10-01610-01), and tagging the module appropriately.

An M4050-YA may be created from an M4050 by replacing C6, a 39 pf capacitor with a 470 pf capacitor and replacing R6, a 3K resistor with a 12K resistor. The new parts are 10-00024 and 13-00488 respectively. Tag the handle to indicate that this module has been altered to M4050-YA.

An M405 may be used in place of an M4050-YA by installing a capacitor IN THE BACKPLANE between K2 and H2. Alternatively, the M405 could be converted to an M405-YA by replacing C6 (120 mmf) with another capacitor. In both the backplane capacitor and the C6 replacement case, a 0.01 mf disc ceramic (10-01610-01) will produce the appropriate pulse width (3 to 5 microseconds). If the substitution for C6 is made, tag the module to indicate this substitution.

V. Baud Rate, Frequency & Period

M401-YA (Pulse width approximately 4.4 microseconds)

40 Baud	640 Hz	1.6 millisecond period
110 Baud	1760 Hz	568 microsecond period

M4050-YA (Pulse width approximately 4 microseconds)

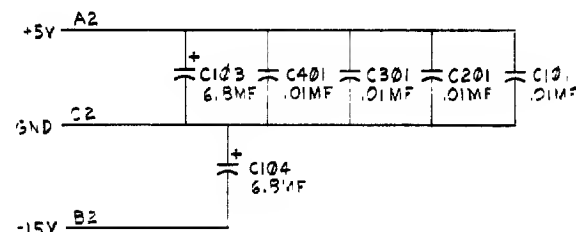
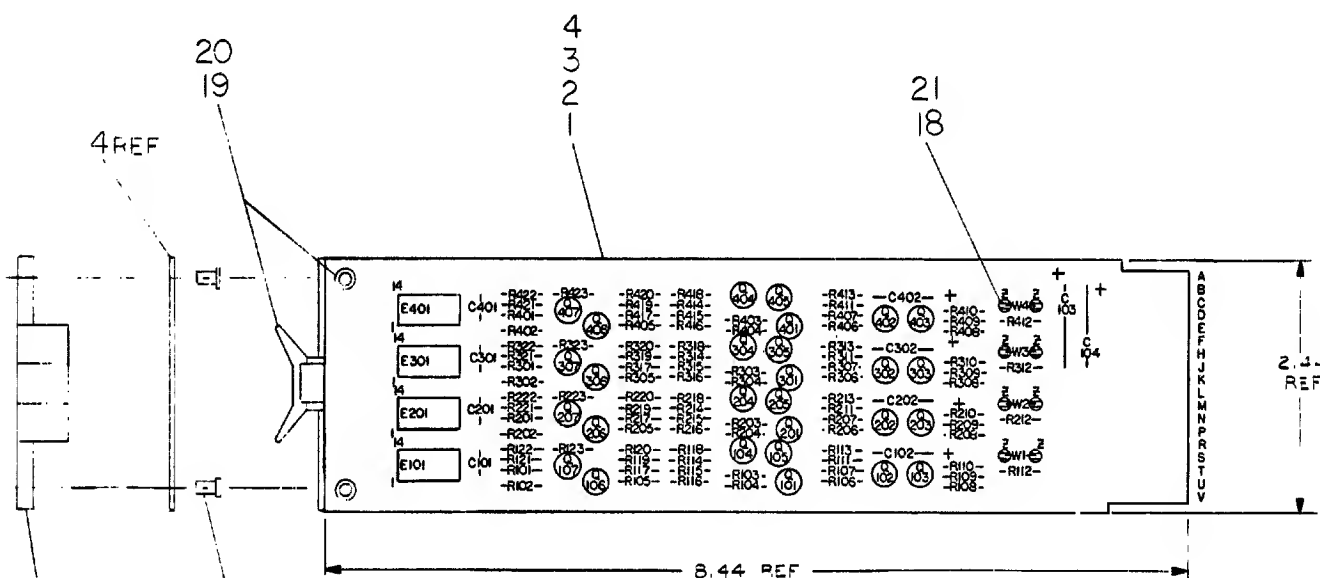
312 Baud	5000 Hz	200 microsecond period
8000 Baud	128K Hz	7.4 microsecond period

SIZE A CODE SP NUMBER DH11-#-17 REV —

DEC FORM NO DEC 16-13011-1022-41370
DRA 106

SHEET 3 OF 3

1. UNLESS OTHERWISE STATED RESISTANCE IS IN OHMS.
2. WHEN THE M5960 IS USED IN APPLICATIONS OVER 110 BAUD JUMPERS
- W1-OUTPUT B1
W2-OUTPUT D1
W3-OUTPUT H1
W4-OUTPUT K1
- MUST BE CUT OUT FOR THAT LINE.

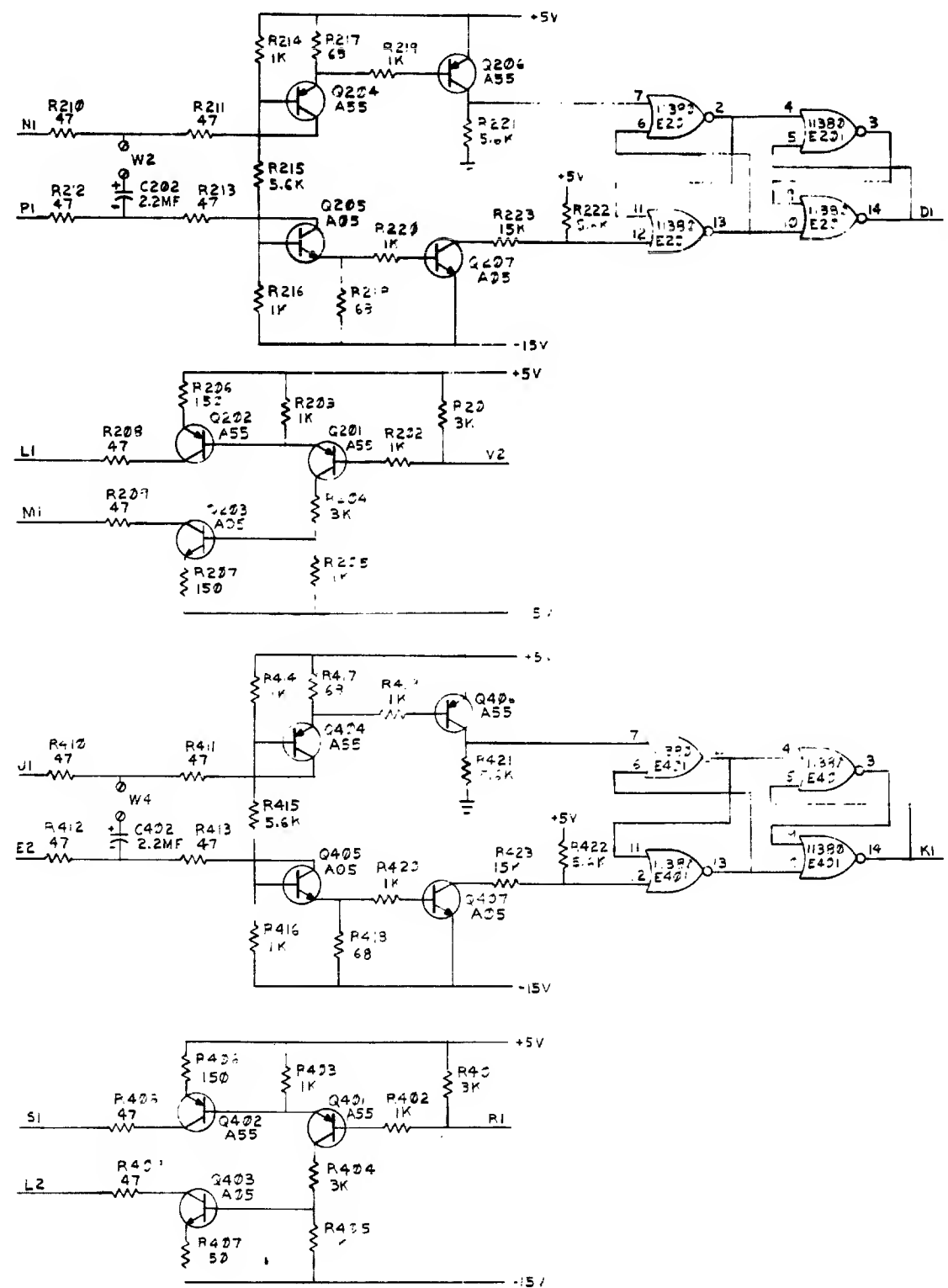
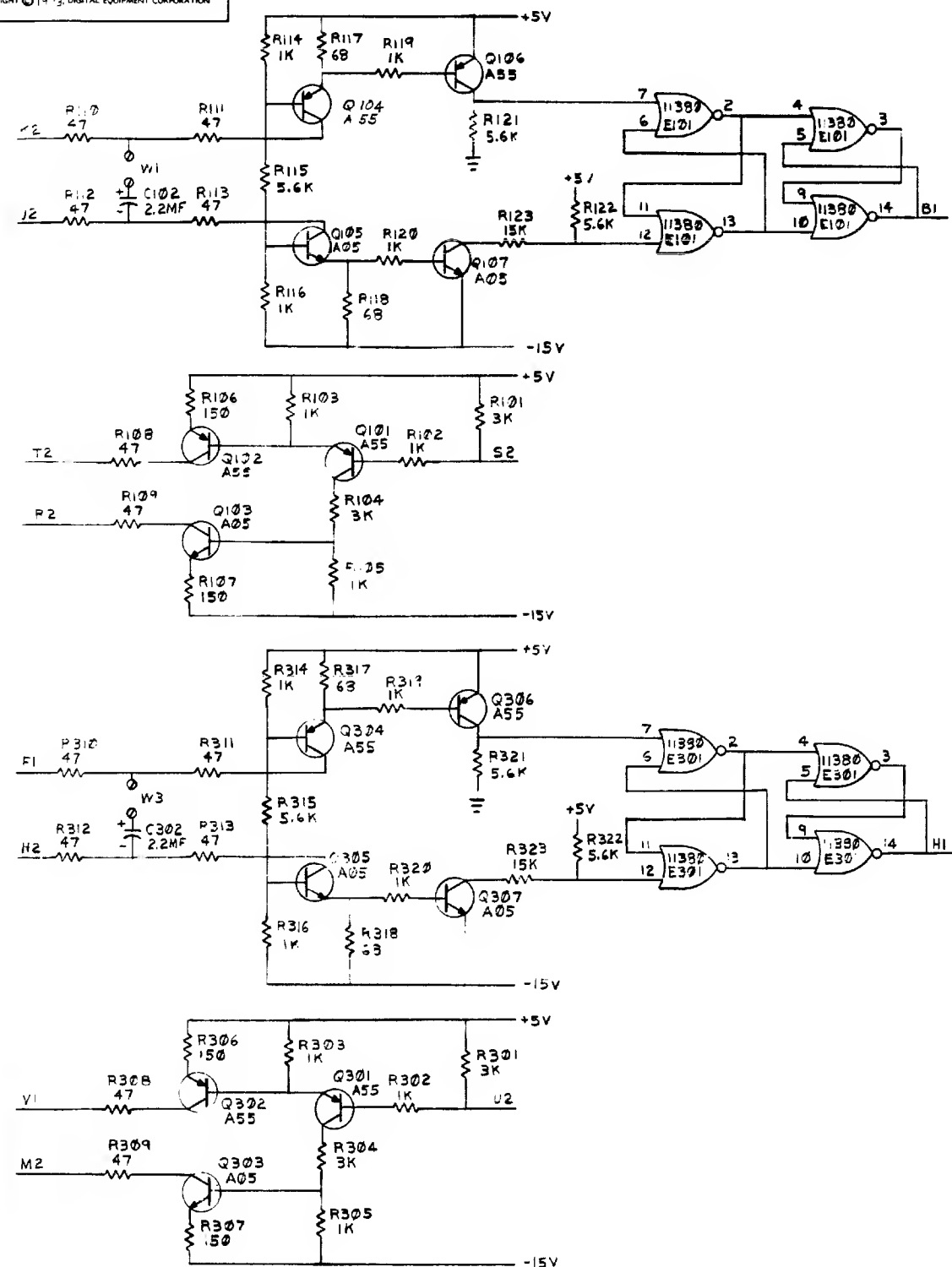


REF		X-Y COORDINATE HOLE LOCATION	K-CO-MS000-B-4
REF		ASSY/DRILLING HOLE LAYOUT	D-AH-MS000-B-5
REF		MODULE ECO HISTORY	D-MH-MS000-B-6
1		ETCHED CIRCUIT BOARD	5010027
4	C101, C201, C301, C401	CAP .01 MF 100V 20% 01SC	1001810-01
4	C102, C202, C302, C402	CAP 2.2 MF 35V 10% TANT	1002431
2	C103, C104	CAP 8.8 MF 35V 10% TANT	1005306
24	R108, R113, R208, R213, R308, R313, R408, R413	RES 47 OHMS 1/4W 5%	1300202
8	R117, R118, R217, R218, R317, R318, R417, R418	RES 88 OHMS 1/4W 5%	1300219
8	R106, R107, R206, R207, R306, R307, R406, R407	RES 150 OHMS 1/4W 5%	1300250
28	R102, R103, R105, R114, R116, R118, R120, R202, R203, R205, R214, R216, R218, R220, R302, R303, R305, R314, R318, R319, R320, R402, R403, R405, R414, R416, R419, R420	RES 1K OHMS 1/4W 5%	1300385
8	R101, R104, R201, R204, R301, R304, R401, R404	RES 3K OHMS 1/4W 5%	1300432
4	R123, R223, R323, R423	RES 15K OHMS 1/4W 5%	1300496
12	R115, R121, R122, R215, R221, R222, R315, R321, R322, R415, R421, R422	RES 5.8K OHMS 1/4W 5%	1301874
12	Q103, Q105, Q107, Q233, Q205, Q207, Q303, Q305, Q307, Q403, Q405, Q407	TRANS MPSA05	1510705
16	Q101, Q102, Q104, Q106, Q201, Q202, Q204, Q206, Q301, Q302, Q304, Q306, Q401, Q402, Q404, Q406	TRANS MPSA55	1510706
4	E101, E201, E301, E401,	I.C. DEC 11380	1911113
8		SPLIT LUG	9006735
2		EYELET	9006732
1		HANDLE FLIF CHIP (MAGENTA)	9008337-6
4	W1, W2, W3, W4	BUSS WIRE #22 AWG	9107560-01

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	UNIT
PARTS LIST				
ETCH BOARD REV	B			
		DRN. <i>R. Wolfe</i>	DATE <i>10-2-73</i>	EQUIPMENT CORPORATION <small>MATHEON, MASSACHUSETTS</small> TITLE 20 MA TO TTL CONVERTER
		CHG. <i>R. Wolfe</i>	DATE <i>10-2-73</i>	
		ENG. <i>R. Wolfe</i>	DATE <i>10-2-73</i>	
		PROL. ENG. <i>R. Wolfe</i>	DATE <i>10-2-73</i>	
		PROD. <i>R. Wolfe</i>	DATE <i>10-2-73</i>	
MPS A05	NA	NEXT HIGHER ASSY		
MPS A55	NA			
DEC NO.	EIA NO.	SCALE	NONE	
CONVERSION CHART		DIFF	OF ?	
		DIMS	M5960-0-1	B

DEC 11380	1	8
IC TYPE	GND	+5V
GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY EXCEPTIONS ARE STATED ABOVE		
IC PIN LOCATIONS		
DEC FORM NO. D80-135A	8	

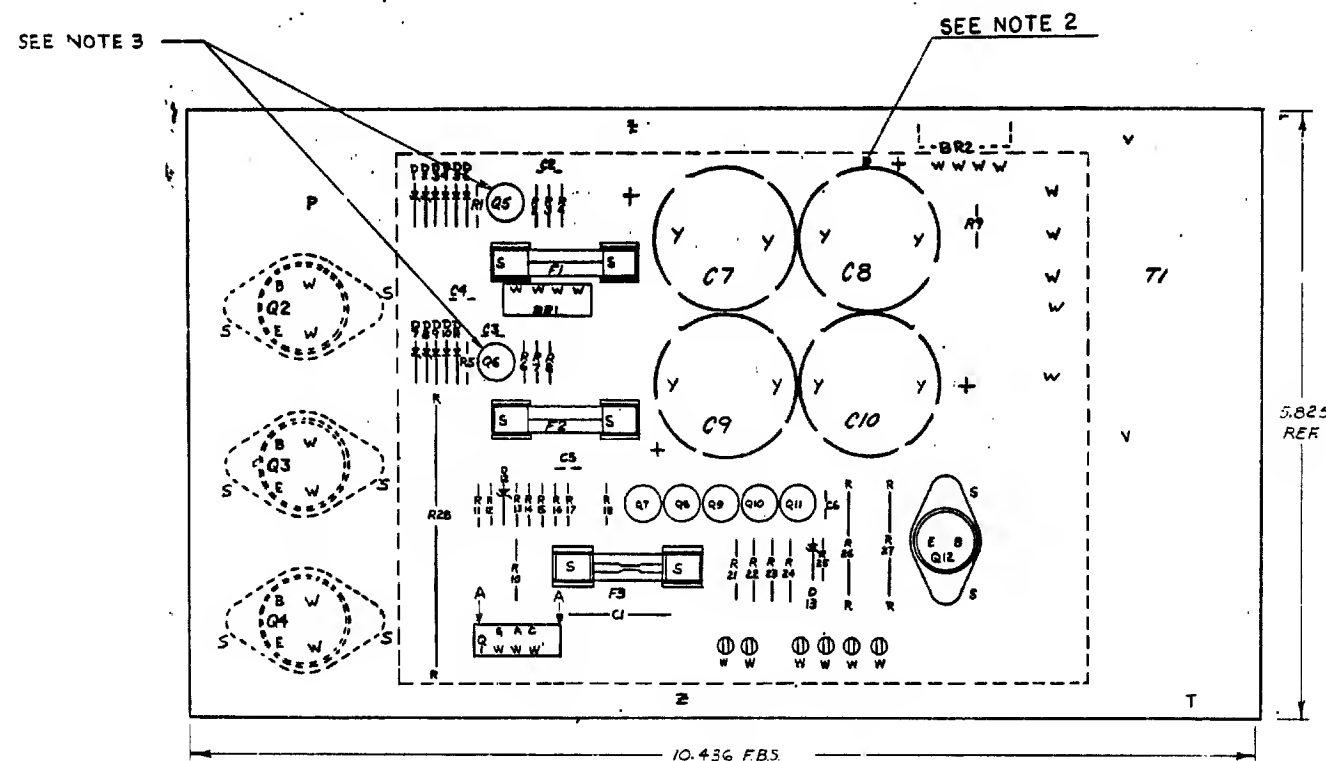
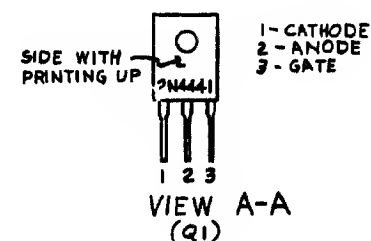
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REVISIONS		
CHK	CHANGE NO	REV

TITLE		SIZE CODE	NUMBER	REV.
20 MA TO TTL CONVERTER		D CS	M5960-0-1	B
SCALE	SHEET 2 OF 2	DIST.		

1. UNLESS OTHERWISE SPECIFIED:
RESISTANCE IS IN OHMS
CAPACITANCE IS IN PICOFARADS
2. C7 - C10 ARE MOUNTED ON NEXT HIGHER
ASSEMBLY (H751).
3. INSTALL ITEM #37 (TRANSIPADS)
UNDER Q5 + Q6.

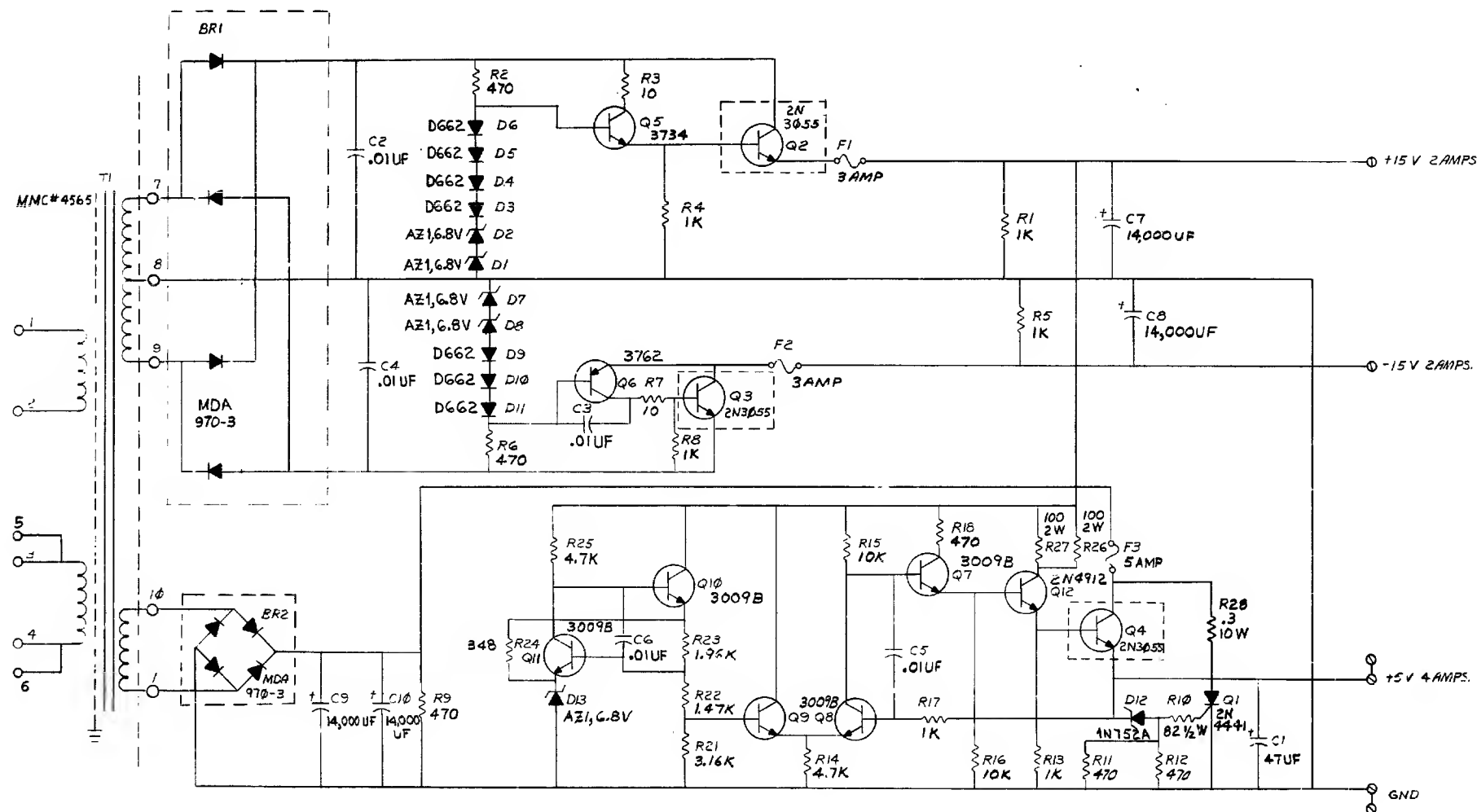


2.	TRANS.	TRANS.	TRANS.
1	R25	RES .5 10 W 5% W.W.	13-09107
1	C6	TRANS. DEC 3742	15-09649
1	Q5	TRANS. DEC. 3734	15-10062
5	Q7 THRU Q11	TRANS. DEC. 3009 B	15-03100
1	Q1	TRANS. 2N4441 SCR	15-05847
1	Q12	TRANS. 2N4912	15-09483
6	R2,R6,R9,R11,R12,R13	RES. 470 1/4W 5%	13-00316
1	R24	RES. 348 1/2W 1% MF	13-04853
2	R26,R27	RES. 100 2W 5%	13-02380
1	R10	RES. 82 1/2W 10%	13-00225
2	R15,R16	RES. 10K 1/4W 5%	13-00479
2	R3,R7	RES. 10 1/4W 5%	13-01317
2	R14,R28	RES. 4.7K 1/4W 5%	13-00447
1	R21	RES. 316K 1/8W 1% MF	13-03043
1	R23	RES. 196K 1/8W 1% MF	13-04853
1	R22	RES. 1.47K 1/8W 1% MF	13-03108
6	R1,R4,R5,R8,R13,R17	RES. 1K 1/4W 5%	13-00365
1	B1	DIODE ARRAY MDA-970-3	11-10208
5	D1,D2,D7,D8,D13	DIODE RE1 1/4M 6.5V ZENER 1%	11-03991-1
1	D12	DIODE 1N752A 5.6V ZENER	11-02808
7	D3,THRU D6,D9,D10,D11	DIODE D662	11-00113
1	C1	CAP. 47UF, 20V, 10% STANT	10-04814
5	C2 THRU C6	CAP. 0.01UF, 100V, 20% DISC	10-01610
6		SPLIT LUGS	90-06735
1	F3	FUSE 5 AMP	90-07221
2	F1,F2	FUSE 3 AMP	90-07217
6		FUSE CLIP	90-07203
6		EYELET	90-0900
2		FLAT WASHER	90-06653
2		KEPNUT #4-40	90-06557
2		SCREW. PAN HEAD #4-40 X 5/16	90-06010-1
REF		MODULE ECO HISTORY	B-MH-54101310-6
REF		ASSY/DRILLING HOLE LAYOUT	E-AH-54101310-5
REF		X-Y COORDINATE HOLE LOCATION	K-CO-54101310-4
1		ETCHED CIRCUIT BOARD	501Q130
QTY	REF DESIGNATION	DESCRIPTION	PART NO.

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST				
ETCH BOARD REV	C			
DEC 3009B	2N3009	DRN <i>2N3009</i>	DATE 7-65-70	EQUIPMENT CORPORATION MAYNARD, MASS-01907 TITLE CASSETTE POWER SUPPLY
2N4912		GRD <i>2N4912</i>	DATE 7-26-70	
		CHP <i>2N4912</i>	DATE	
		PRST. ESD <i>2N4912</i>	DATE	
		PROD <i>2N4912</i>	DATE	
DEC NO.	EIA NO	NEXT HIGHER ASSY		
CONVERSION CHART		SCALE 1 OF 2	NUMBER DCS 5410131-0-1	REV 7

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O INDICATES HOLES FOR DIODE BRIDGE
Q2, Q3, Q4, BR2 & T1 ARE MOUNTED ON
CHASSIS/HEAT SINK

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST				
ETCH BOARD REV	C			
		DATE 13 March 70 BY C. J. MOORE CHK C. J. MOORE DATE 13 March 70 BY C. J. MOORE CHK C. J. MOORE DATE 13 March 70 BY C. J. MOORE CHK C. J. MOORE DATE 13 March 70 BY C. J. MOORE CHK C. J. MOORE DATE 13 March 70 BY C. J. MOORE CHK C. J. MOORE	EQUIPMENT CORPORATION ROSLAND, MASSACHUSETTS	
		TITLE CASSETTE POWER SUPPLY		
DEC NO.	EIA NO.	SCALE 1/1 SHEET 2 OF 2		
CONVERSION CHART		DCS 5410131-0-1		